International Labour Organization

▶ Digital Work in Eastern Europe: Overview of Trends, Outcomes and Policy Responses

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Abstract

This paper documents the emergence and growth of digital labour markets in Eastern Europe. It shows that the development of two types of digital work – online work through online labour platforms and offline work mediated by mobile apps – have a different history, root causes and dynamics. While both are enabled by digital technologies, each attracts a different worker profile and results in different outcomes for workers. The paper also reviews policy responses to digital work in three areas: bringing digital work under the scope of existing regulations; ensuring fair competition with workers in traditional forms of employment; and improving formalization and better tax compliance of digital workers. It concludes by discussing how low scope for organizing digital workers, poor law enforcement and proliferation of new modes of digital work remain key obstacles for effective regulation.

Key words: *digital work, online labour markets, gig economy, labour platforms, work via apps.*
Regional coverage: *Eastern Europe, South-Eastern Europe, Central Asia.*

About the author

Mariya Aleksynska is an Economist, with a PhD in Economics from Bocconi University (Milan: 2008). She has over ten years of experience in Labour, Development, and International Economics, with a particular focus on the functioning of labour market institutions, international migration, and work in the digital economy. Previously, Mariya served as an ILO official (Geneva: 2012-2018), a CEPII researcher (Paris: 2008-2012), and an invited lecturer at IEDES La Sorbonne (2019), Science-Po (2012), and Nanterre University (Paris: 2009-2011). She has a strong publication record, including in top-ranked academic journals. Mariya wrote this paper in the capacity of an independent consultant. As of September 2020, she joined the OECD Development Center.

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Introduction

The past two decades have been marked by the emergence of digital work. This includes work through online web-based platforms that allow remote delivery of electronically transmittable services, and also offline, on-demand work in a specified physical location that is mediated by digital labour platforms or mobile apps (De Stefano, 2015; Codagnone et al., 2016; ILO, 2016). Both types of work have been expanding to numerous sectors and occupations, and gaining prevalence in all parts of the world. The use of online platform work alone is estimated to have grown by a quarter between 2016 and 2018 (Kässi and Lehdonvirta, 2018; OLI, 2019).

However, not all areas in the world have been marked by the phenomenon to the same extent or in the same way. With respect to online work through digital labour platforms, which connect workers with clients from all over the world posting tasks (work available), the supply of workers is dominated by the United States, India and the Philippines, closely followed by Eastern Europe and the Russian Federation. In 2013-2017, Ukraine and the Russian Federation occupied the fourth and the fifth place in the world, respectively, in terms of the size of financial flows and the number of tasks executed by workers on online web-based platforms (Graham et al., 2017; Forbes Ukraine, 2015; OLI index, described in Kässi and Lehdonvirta, 2018). Two other Eastern European countries, Serbia and Macedonia, were ranked in 2018 among the leading countries in Europe and in the world by the percentage of digital workforce relative to the country's total population and total workforce (AnalyticsHelp, 2018). Serbia and Romania were disputing this leading position in 2013 (Kuek et al., 2015). As regards offline work that is mediated by digital labour platforms or mobile apps, several Eastern European countries feature a greater share than the European average of such digital workers (European Commission, 2018).

This paper documents the emergence and growth of digital labour markets in Eastern Europe[1] over the period 1999-2019. It presents the profile of digital workers, their working conditions and discusses how these are shaped by the business models of digital labour platforms. It also reviews regulatory responses governing the digital economy in the region.

The regional focus of the paper allows placing the emerging digital work phenomenon in the context of broader labour market developments in order to better understand why digital work is being embraced so widely in the region and also the challenges and particularities of its regulation. In doing so, the paper aims to explain why the uptake of digital technologies for searching and accessing work has been considerably more substantial in some parts of Eastern Europe than in other regions, and especially compared with the rest of Europe. At the same time, it also shows why collective and legal responses have been somewhat limited to date, especially in the area of labour market regulations.

Several main findings are reported. First, development of the two types of work – online work through digital labour platforms and offline work mediated by online web-based platforms and mobile apps – has been pursuing different paths. Online work through digital platforms has a longer trajectory in the majority of countries, dating back to the early 2000s. Initially, its development was led mainly by "freelancers" finding their way into international markets and creating local platforms that fit the local culture and local

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[1]   This paper covers a selection of countries from Central, Eastern, and South-Eastern Europe, as well as countries from the former Soviet Union. The selection is driven by the prominence of the phenomenon of digital work at the time of writing of this paper, and by available data. Covered countries, in alphabetical order, are: Belarus, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, North Macedonia, Poland, Romania, the Russian Federation, Serbia, Slovakia, Ukraine. The paper occasionally mentions Armenia, Azerbaijan, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan.

needs. Macrotask platforms, rather than microtask platforms, seem to be more popular among the Eastern European "freelancers", possibly because microtask platforms do not offer sufficiently attractive pay.[2]

In contrast, work through apps emerged at least a decade later. In many instances, it was driven by the entry into local markets by international companies, such as Uber for transport, and most recently Glovo for delivery, and by the transposition of their business model into the local markets. This also translated into differences observed across countries: while in some, online work predominates, in others, work through apps is more common.

Second, the paper shows that the two types of digital work, while both enabled by digital technologies, attract different worker profiles and result in significantly different outcomes for workers. On the one hand, the emergence of work through digital labour platforms corresponded to the emergence of a new generation of workers, often with a new set of skills (high and IT-backed), a new entrepreneurial mindset and aspirations of flexibility, independence, creativity and self-reliance. These workers, who often call themselves "digital freelancers", often see work through digital labour platforms as a modern way of working, a means of transcending the boundaries of the local labour market and offering better application to their skills, liberating them from "old-fashioned" employment relationships and dysfunctional welfare states. As shown in the paper, they have a generally high level of satisfaction with this work, and their working conditions are either comparable to or better than those of workers in the local offline economy. At the same time, this mode of work is spurred by the flexibility and cost-saving needs of enterprises. As this type of work generalizes and spreads into different sectors of activity, it may be expected that working conditions of online workers could worsen.

In contrast, the emergence of work through mobile apps, and to some extent of online web-based platforms oriented to work exclusively within the local labour market,[3] can be seen as a continuation of precariatization and informalization. In part, this is due to the occupational specifics of such platforms and apps, as they operate in sectors that are already largely informal and precarious, including delivery, transport, home repair or domestic care work. But also, workers usually take up jobs through mobile apps and through local platforms because they are compelled to do so. Hence, they find themselves much more often in a situation of disguised (bogus) self-employment; with poorer working conditions and lower satisfaction with such work. It could therefore be argued that the two types of digital work, at least at this initial stage, are reinforcing labour market inequalities in the region.

Third, the paper reveals that there are very strong local, regional and international dimensions of the digital labour markets in Eastern Europe. Work through mobile apps is primarily conducted locally, as it is only mediated by digital technology but performed offline. Its international dimension is related to the fact that the owners of the platform are often registered in a different country. This allows them to more easily promote a discourse of bringing in "modern" and "innovative" practices, while at the same time escaping compliance with local regulations either because they insist on being held to different standards, or because they disregard existing regulation, or because, in some instances, innovation is outpacing regulation. Depending on the scenario, the paper demonstrates that there have been different policy responses to the emergence of work through the apps.

Work through online web-based platforms, in contrast, exists in all three dimensions, connecting workers with clients on the local (national), regional and international online markets.

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[2] Microtask platforms mainly specialize in tasks of very short duration, generally requiring a low level of skill (product categorization, "liking" a page). Some platforms, such as AMT, are known for offering mainly microtask work (see Berg et al., 2018 for more examples). Macrotask platforms, in contrast, require considerable time and skills for work execution (website development). Some authors speak of complex tasks, which are similar to continuous, relatively high-skilled work performed by firm employees or by a specialized contractor (Felstiner 2011).

[3] Some of the online platform work serving international markets, especially related to microtasks, can also be precarious. However, we discuss the general trends observed in the region.

The national online market seems to be strongly affected by the population size of the local offline labour market. For example, the Russian Federation and Ukraine have the largest populations in the region; they also have the highest number and greatest diversity of local online web-based platforms. Poland, while featuring a relatively low share of online workers in relative terms, also has a substantial number of platforms developed to serve its national market, partly owing this to the size of its population. In contrast, other countries of the region, especially those with small absolute population size, rarely have national online web-based platforms, even if some have relatively high shares of online workers.

The regional dimension, in turn, is shaped in a pronounced way by cultural and linguistic aspects. The Russian language, which is a 'lingua franca' in several countries of the region, largely mediates this regional dimension. In fact, this regional dimension has been largely disregarded in previous papers that measure the work of Eastern Europeans exclusively on English-speaking international platforms. This paper shows that the real size of the digital online labour market in Eastern Europe and the Russian Federation is considerably larger than reported earlier.

Finally, the paper shows that, despite the multi-level dimension of digital work, policy responses governing digital work have so far been made mainly at the national level, and largely for offline work mediated through digital labour platforms or mobile apps. The vast majority of policy responses to date concern work through mobile apps and not work conducted online via digital labour platforms. Responses through labour laws have been modest at best, in large part owing to poor culture of unionization and difficulties in organizing digital workers. Most of the policy responses to work through apps in fact pertain to the domain of ministries other than labour, their main objective being to bring digital work under the scope of existing regulations; ensuring fair competition with workers in traditional forms of employment; improving formalization and the tax compliance of digital workers. In some instances, such policies have effectively improved the working conditions of digital workers. Yet, poor law enforcement and the swift proliferation of new, innovative modes of digital work remain key obstacles to more effective regulation.

▶ 1 Development of digital labour platforms in the region

To understand how digital work has developed in Eastern European countries, it is essential to place it in the context of broader socio-economic developments in the region.

Indeed, the labour market has historically been quite different in Eastern Europe compared with the rest of the world. National labour markets in the region share several common features, distinguishing them from other countries. These common features mainly stem from the transition from planned to market economy. They include rapid economic restructuring, sizeable worker displacement (Lehman et al., 2012) and working poverty (Bruck et al., 2010) throughout the 1990s to 2010s. These problems still persist today for some worker categories, notably for elder workers. They have also profoundly marked the work aspirations of the younger generations. Some of the regional challenges also include misalignment of education systems with labour market needs, skill mismatches, including mainly over-qualification (Kupets, 2016), high and persistent informal employment[4] (Akay and Khamis, 2012; Lehman, 2015; Lehman and Pignatti, 2018, ILO, 2018), the image of trade unions and collective bargaining which are considered to be a legacy of the communist past (Crowley, 2004; Ost, 2009; Kallaste and Woolfson, 2009). It is also in this context that new forms of employment, including agency work and dependent employment through service contracts, have led to a rise in the post-global recession period (ILO, 2016). In this context, the uptake of digital technologies for searching and accessing work has been considerably more substantial in this region than elsewhere and particularly so compared with the rest of Europe.

At the same time, Eastern European countries are quite heterogeneous, which explains at least in part why the uptake of online platform work and work through mobile apps has been uneven.

First, countries differ substantially in their population size, and hence in the sheer number of workers and clients in their internal labour markets. As will be shown further, it is indeed the largest countries, such as the Russian Federation and Ukraine, and to a certain extent Poland, that have most aggressively seized digital labour opportunities. This is demonstrated by the presence of a number of local digital labour platforms. They also addressed some of the challenges related to unemployment in the national labour markets, which is demonstrated by the amount of work performed by workers of these countries with foreign clients on international digital labour platforms. In addition, many international platforms are English-speaking platforms and some of them entered into the national markets by proposing national-language versions. This has occurred primarily in countries with large populations because such entry paid off these platforms as they are able to access larger markets in a short period of time.

Second, countries differ in the degree of their economic development and political stability. Several Eastern European countries are now members of the European Union (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia). Even if progress is still to be made in many areas, many of their labour laws and enforcement practices have been reformed over the past two decades, often in order to meet EU legal requirements. Social security systems have also been reformed and rendered more sustainable and inclusive in several countries. One such example is Romania, where the social security system was reformed in 2018 with the main objective of combating undeclared work by reducing incentives for employers to use civil contracts instead of labour contracts (Roşioru, 2019). Moreover, EU-level rulings and regulations governing digital work became important sources of law for the Eastern

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[4]   The degree of informality varies, however, within the region. For example, according to the estimates of Schneider et al. (2010), the size of the informal economy increases as we move further east: throughout the 2000s it was lowest in Central and Eastern Europe and the Baltic states, and the highest in the European CIS and the Caucasus.

European EU-member states. Examples of this include the European Court of Justice 2017 ruling on the status of some applications, such as Uber (Judgment in Case C-434/15), which was applied in national court rulings in Slovakia. Lastly, Eastern European EU member states enjoy relatively higher economic and political stability compared to their neighbours. As a result, digital work developed somewhat differently there, less excessively and mainly in the already precarious sectors. Policy responses were in many instances also swifter in those countries.

In contrast, countries such as Ukraine or Moldova continue operating with rather weak social security systems (ILO, 2019), general lack of trust in social institutions (Paniotto, 2018; Gallup, 2019), insufficient or inadequate labour regulation and poor enforcement (ILO, 2020). Also, greater economic and political instability in some of these countries compels their workers to secure employment and savings through various means, including digital work. This has resulted in digital work gaining ground more rapidly in these countries, impacting a broader range of skills and sectors, and even those that are traditionally less precarious.

Eastern European countries also differ in the size of per capita income. In addition to the Baltic states Estonia, Latvia and Lithuania, the Eastern European states Czech Republic, Slovakia and Slovenia are now considered to be "advanced economies" (IMF, 2019). In poorer countries where inequality is greater, working for foreign clients is more attractive as it often offers higher earnings compared with local market opportunities. In wealthier countries with lower inequality, earnings in the local economy though traditional employment, coupled with more resilient social security protection, remain sufficiently attractive to keep workers in these traditional modes of work.

Finally, countries differ in the rate of Internet penetration and Internet usage (ITU, 2019), and the general level of digital skills of their populations. For example, the proportion of the population with digital skills is lowest in Bosnia and Herzegovina; it is highest in Slovakia, Hungary and Estonia (ITU, 2019). The latter are also the countries in which digital work gained more prominence.

As a result, several Eastern European countries have experienced a real surge in digital work while others have not. Digital work also took different proportions and shape: in some countries, online work has flourished at the national, regional and international levels; in others, only the international dimension of online work has been strongly present; in others still, work through apps has been popular. Policy response to digital work has varied, and many countries of the region facing similar challenges to enforcement, often look at successful policy implementation in neighbouring countries.

▶ 2 Work on digital labour platforms

2.1 Extent of the phenomenon and general regional trends

There are no unified statistics measuring the extent of work conducted on digital labour platforms. As a result, researchers rely on survey data or track data on online web-based platforms or provide estimates of registered platform users, financial flows and tasks performed, based on information reported by the platforms. Table 1 reviews some of these estimates. It shows that Ukraine and the Russian Federation are systematically ranked first in Eastern Europe in terms of financial flows, the number of executed tasks on online web-based platforms, and the number of "digital freelancers" over the period 2013-2018. Serbia and Macedonia were ranked first in the world by the percentage of digital workforce relative to the total population and total workforce.

▶ **Table 1. Country rankings in terms of work on digital labour markets**

OLI, 2019	Kuek et al., 2015 (data as of 2013)	Graham et al. 2017 (data as of 2013)	AnalyticsHelp, 2018	
Absolute number of workers	Relative to population size	Absolute number of workers	Absolute number of workers	Relative to population size
7 Russian Federation	1 Serbia	4 Ukraine	7 Ukraine: 53529	1 Serbia
9 Ukraine		5 Russian Federation	8 Russian Federation: 44534	2 Macedonia
11 Serbia		9 Poland	11 Serbia: 24605	4 Armenia
		11 Belarus	16 Romania: 16731	6 Montenegro
				7 Bosnia and Herzegovina

Source: Authors' compilation based on the data reported in these sources. OLI, 2019: data from five leading English-Speaking platforms; Graham et al., 2017: data from one English-speaking platform; Kuek et al., 2015 and AnalyticsHelp, 2018: number of platforms not indicated; English-speaking platforms only. Note: The information refers only to online work through digital labour platforms.

One characteristic feature of digital labour markets is that they do not have geographical boundaries. However, cultural and linguistic boundaries, seem to be important determinants in the region. In fact, existing analogue cultural differences translate into differences in the types and the functioning of digital labour markets. As a result, workers in the region access three types of platforms and markets: national (local), regional (strongly shaped by a common language, such as Russian or Serbian), and international (mainly English-speaking).

These three geographical dimensions of online work are depicted in Figure 2, based on the country of origin of online workers, such as Ukraine or Belarus. It shows the complexity of online work in the sense that the geographical location of a platform, that of a client and a worker do not necessarily coincide. In this figure, the thickness of each arrow approximates the workflow (number of tasks or financial flow). However, to the best of our knowledge, no data exists to estimate precisely the amount of these flows. Figure 3 depicts also the three geographical dimensions of online work from the viewpoint of platform.

Figures 1 and 2 show that national digital labour markets are country-specific and mainly oriented towards satisfying national work demands. The national (local) dimension is mediated mainly by locally based platforms, operating in local languages, and matching locally based clients and workers. In addition, it is mediated by platforms based outside the country, but which also match locally-based clients and workers.

Freelancers
- ❖ Based in a specific country (ex.: Ukraine)
- ❖ Speaking national, regional and foreign languages (ex.: Ukrainian, Russian, English)

Platform type : Serving Primarily the International Market
- ❖ Based outside the region (ex.: Upwork.com)
- ❖ Language: any, but mainly English

Client location:
- ❖ Mainly outside the region (ex.: United States)
- ❖ Within the region (ex.: Russian Federation)
- ❖ Within the country of origin (Ukraine)

Platform type : Serving Primarily the National Market
- ❖ Based inside the country origin (ex.: www. Kabanchik.ua)
- ❖ Language: spoken in the country (ex.: Ukrainian and Russian)

Client location:
- ❖ Mainly within the country (ex.: Ukraine)
- ❖ Within the region (ex.: Russia)
- ❖ Outside the region (ex.: Ukrainian or Russian-speaking diaspore in the United States)

Platform type : Serving Primarily the Regional Market
- ❖ Based within the region (ex.: Russian www.fl.ru), or within the country of origin (ex.: Ukrainian www.weblancer.com)
- ❖ Language: regional (ex.: Russian)

Client location:
- ❖ Mainly within the region (ex.: Russian Federation, Kazakhstan)
- ❖ Within the country of origin (ex.: Ukraine)
- ❖ Outside the region (ex.: Russian-speaking diaspora in the United States)

International dimension

Regional dimension

Local dimension

Regional Online Platform
Example : www.weblancer.net
Location: Ukraine
Language: Russian

| Clients | | Workers |

Locally based (Ukraine)

Locally based (Ukraine)

Regionally based (ex.: Russian Federation)

Regionally based (ex. : Russian Federation)

Internationally based (ex.: Russian-speaking diaspora in the USA)

Internationally based (ex.: Russian-speaking diaspora in the USA

International dimension

Regional dimension

Local dimension

The regional dimension of digital work and digital labour markets is mediated primarily by a common language, commonly spoken in several countries in the region. In the former Soviet bloc countries, the common language is Russian, still spoken by a large number of workers (though not official in most of them). This market is primarily driven by Russian-speaking platforms located in the region, mostly in the Russian Federation and in Ukraine. These digital labour platforms match workers and clients within the region, even though, technically, workers or clients may be located anywhere in the world. According to some estimates, about two thirds of all Russian-language freelancers come from the Russian Federation, while others are mainly from Ukraine, Belarus, Kazakhstan and Moldova (Strebkov, Shevchuk, Spirina, 2015). Workers from over 30 countries are systematically found on Russian-speaking online web-based platforms (Shevchuk and Strebkov, 2015), and some may be from the Russian-speaking diaspora. Similarly, the Serbian language mediates the regional dimension of online work in the Balkans, though evidence of this is considerably scarcer than on the Russian language. The regional dimension of online work is available only to workers from those countries in which the regional language is widely used. For this reason, the regional dimension of online work is almost non-existent in countries such as Hungary, Poland or the Czech Republic.

Finally, the international dimension of digital work is defined primarily by the English language. International platforms are hosted mainly outside the region, with American- British- and Australian-based platforms being the largest. Some international platforms now have interfaces in local languages; still, the majority of tasks on them are posted in English and other non-local languages. Clients are located all over the world, and are matched with locally-based workers.

In addition to the geographical dimensions, platforms differ in their specialization. Some international platforms, such as Upwork, have a general profile, in the sense that tasks in any field of specialization can be posted there and workers with any technical profile can sign up. While other platforms specialize in a specific field of activity, such as translatorcafe, which specializes in translations. To work on this platform workers have to provide proof of their professional credentials, education and experience before they can open their account on the platform. At the international and regional level, both general-type and specialized platforms exist. They are somewhat scarcer at the national level (except in the Russian Federation). As online work expands into various sectors, they are starting to appear at the national level, too.

There is no systematic statistical evidence on the difference in tasks, task complexity and skill composition of workers across these different types of platforms. Worker sorting across platforms depends on many factors, including not only their level of technical skills but also their language skills (primarily English for international platforms; primarily Russian for regional platforms). In addition, the degree of their technical skill transferability matters. Some of the technical skills will be more readily transferable than others. For example, workers with easily transferable IT skills will be more often found on international platforms, both general and specialized. In contrast, workers with less transferable skills, such as in national legal practice, will be more often found on national platforms. Moreover, workers may not necessarily want, or be able, to apply their technical skills online. Indeed, there is strong evidence from many surveys that both horizontal and vertical skill mismatches are significant on online web-based platforms, particularly for women (Berg et al., 2018; Shevchuk, Strebkov, Davis, 2015).

Some evidence from qualitative surveys (Aleksynska, Bastrakova, Kharchenko, 2018), and from various freelancer blogs, indicates aspirations of workers with specific technical skills regarding platforms on which they wish to work. These aspirations result in a certain sorting of workers across different platforms, depicted in Table 2. For example, workers in an occupation with fully transferable skills, having a proficient level, will target specialized international platforms where they can be matched with international clients offering the most challenging tasks and the best pay (best return on their skills). In contrast, workers with poorly transferable and poorly developed skills will self-select mainly into national platforms of a general type. They may also access regional and international platforms of a general type for simple tasks that do not match their field of specialization; it is for these workers that the extent of skills mismatch will be the greatest.

Anecdotal evidence suggests that international specialized platforms are indeed the ones that offer the best pay. Regional platforms typically offer better pay than national platforms, but lower pay than international platforms, for similar types of tasks. Some workers "build their career" by first "trying and testing" national general-type platforms before moving to "more serious" platforms. Systematic evidence of such transitions remains limited, however. Moreover, such career strategies are jeopardized by the fact that the reputation and experience built on one platform are not necessarily transferable to another.

▶ **Table 2. Schematic representation of worker aspirations and sorting by tasks, skills and platforms**

Task and skill transferability across national borders	Examples of occupations / performed tasks	Worker's technical skill in this domain	Geography of the platforms targeted by a worker with this skill	Content type of the platform targeted by a worker with this skill	Type of skill requested by the client on this type of platform
Fully transferable	IT, design, work with photo and video	Proficient	International	Specialized	Advanced to proficient
			Regional	Specialized	Advanced to proficient
		Intermediate to advanced	International	General	Any
			Regional	General	Any
				Specialized	Advanced to proficient
			National	General	Any
				Specialized, if they exist	Advanced to proficient
		Beginner	Regional	General	Beginner to intermediate
			National	General	
Somewhat transferable	Content writing, rewriting, copy-writing	Proficient	International	Specialized	Advanced to proficient
			Regional	Specialized	
			National	Specialized	
		Intermediate to advanced	Regional	General	Any, up to advanced
				Specialized	
			National	General	
				Specialized, if they exist	
		Beginner	Regional	General	Beginner to intermediate
			National	General	
Poorly transferable	Legal services, marketing, accounting	Proficient	Regional	Specialized	Advanced to proficient
			National	Specialized	
		Intermediate to advanced	Regional	General	Any, up to advanced
			National	Specialized, if they exist	
				General	
		Beginner	Regional	General	Beginner to intermediate
			National	General	

Source: Authors' compilation based on the reviewed literature and on the review of selected platforms.

Note: Examples of general-type platforms: on the international level: www.Upwork.com; on the regional level: www.fl.ru ; on the national level: www.Freelanceria.pl. Examples of specialized-type platforms: on the international level: www.translatorscafe.com, www.proZ.com; on the regional level: www.tranzilla.ru; www.Etxt.ru ; on the national level: https://seoware.ua/.

If there is one field of online work for which there is some statistical evidence about its extent on the international level, it is information technology (IT). This field is characterized by near-perfect skill transferability across borders, and also by high technical skill requirements. In this field, workers from Ukraine and the Russian Federation have dominated the market in Europe throughout the past decade. In addition, other countries, particularly Serbia, Romania and Poland, have witnessed significant presence of IT online workers.

Based on a review of over 1.5 million projects (tasks) and over 160,000 profiles of online workers specialized in performing IT tasks for foreign clients on the largest general-type platforms (oDesk and Elance, which later merged to become Upwork, Freelancer and others), it was estimated that about one third of all IT tasks outsourced through digital platforms to Eastern Europe was performed by Ukrainians in 2013 (Topsdev, 2015). The share of Ukrainian freelancers in the Eastern European IT market declined in 2014-2015, only to grow again in 2016 and reach 34% (Topsdev, 2017). Ukrainian IT freelancers were closely followed by Russian freelancers, whose share in the Eastern European IT market reached 28% in 2016 (Topsdev, 2017). Other notable market players are Romania and Serbia. They seem to have entered the digital labour market somewhat later as compared with Ukraine and the Russian Federation. This is manifested by the record growth of their market share in IT freelance of 32% and 79% respectively in 2013-2014, albeit from a very low initial level (Topsdev, 2015). Moreover, this growth slowed down to 3% and 21% respectively by 2016 (Topsdev, 2017). Another country that has witnessed a sizeable increase in its IT digital labour work is Belarus: its share grew by 69% in 2015, also from a very low level (Topsdev, 2017). In 2015, Belarus occupied the third place in Eastern Europe in terms of the financial share of orders (Topsdev, 2017). Figure 3 shows the top 10 countries in Eastern Europe in terms of market share of IT tasks performed by workers through online web-based platforms in 2016.

▶ **Figure 3. Market share of IT tasks performed through online web-based platforms, in top ten countries of Eastern Europe, 2016 (per cent)**
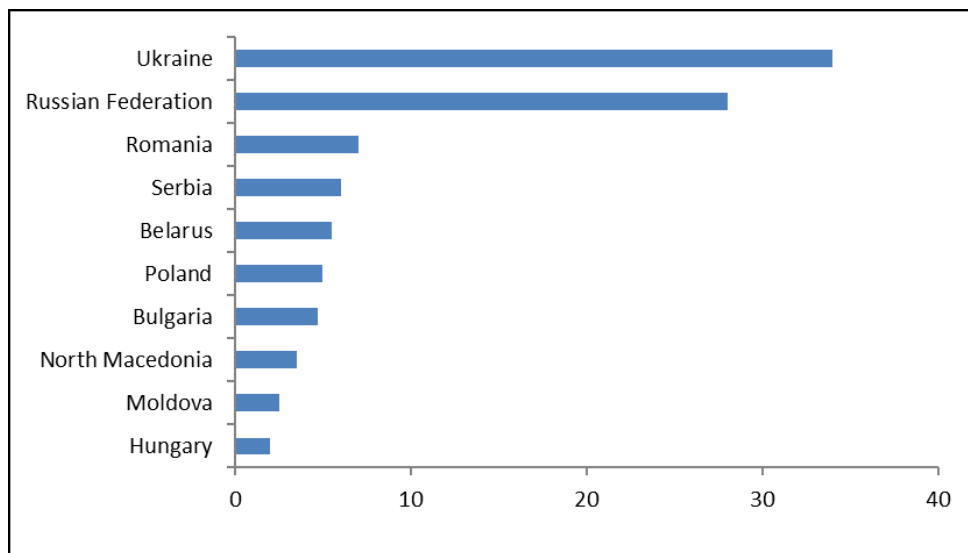
Source: Topsdev, 2017.

Note: 20 countries of Eastern Europe were considered for this study: Albania, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Ukraine.

The largest share of all IT demand comes from the United States (55% in 2016: Topsdev, 2017), followed by the United Kingdom (10%), Australia (7%) and Canada (5%). Countries such as Denmark, France, Germany, Israel, Netherlands and Sweden are also present, but their market shares are less than 5% in all tasks outsourced to Eastern Europe through online web-based platforms (Topsdev, 2017). The IT skill requirement in highest demand was html+css (possessed by 10% of freelancers), followed by php (6%) and javascript (4.5%).

2.1.1 Online work in Ukraine

The development of online work in Ukraine started in the mid-2000s. It immediately featured a regional and an international dimension, while the development of the local freelance market took some time to take off. The very first digital labour platform in the Russian-speaking region was a Ukrainian-based, Russian-language portal, Weblancer, founded in 2003 (Strebkov, Shevchuk, Spirina, 2015). Initially oriented towards the IT sector, it is considered to be one of the most serious and influential platforms, with over one million users in 2019.[5] The founding of this platform was followed by Freelancehunt in 2005, a Ukrainian-based platform which, by 2019, was considered to be one of the most reputable platforms on both the local and the regional markets.

But the real take-off of the Ukrainian digital labour market started with the global economic recession of 2008, and has skyrocketed since 2013 (Aleksynska, Bastrakova, Kharchenko, 2018). This rise is primarily explained by the deepest ongoing political changes in the country since its independence in 1991: the Revolution of Maidan in 2013-2014 that resulted in the ousting of the country's president, the outbreak of a military crisis in the Eastern part of the country in early 2014, and the annexation of Crimea. These political events exacerbated an already difficult economic and labour market situation, marked by high labour informality and poor law enforcement, low confidence in the functioning of social security systems and other public services. As a result, workers massively began to look for new employment opportunities, including online. This process was accompanied by a surge in the development of various online web-based platforms of the general type and also of platforms specialized in specific sectors and activities. Some evidence also suggests that the conflict with the Russian Federation led to the outflow of Ukrainian freelancers from Russian-based platforms who turned instead towards international online markets, or towards Ukrainian-based platforms that have been demonstrating significant expansion ever since.

According to a survey led by a large human resources company, by 2016, nearly every fifth Ukrainian white-collar office worker had tried digital work and would have liked to switch to it fully; 48% viewed it as additional source of income (HH.ua, 2016). The IT sector alone, one of the largest sectors of digital freelance, grew at a rate of 27% in Ukraine in 2017 (DOU.ua, 2018).

As of 2018, Ukrainians were accessing the digital labour market through over forty platforms (Aleksynska, Bastrakova, Kharchenko, 2018), including international, regional (mainly Russian-speaking) and local. Both the absolute and relative number of Ukrainian workers has been growing on all types of platforms. As of March 2018, there were at least half a million registered workers from Ukraine on the six largest platforms through which Ukrainian's access digital work. This represents roughly 3% of the employed population. For example, international platforms such as Upwork recorded nearly 180,000 Ukrainian users by 2017 (AIN, 2017). Ukrainian-based Freelancehunt had over 260,000 registered freelancers and over 100,000 clients in 2019 (information from the site), recording a growth of over 25% in 2016-2017.[6] Not only did this platform dominate the local market, it also created a Russian-language version oriented to the Russian regional market. New platforms, oriented almost exclusively to the local market, also emerged such as Kabanchik. ua in 2012, and it has over 50,000 Ukrainian workers registered and 200,000 clients by 2018 (information from the site).

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[5]   This includes freelancers from all former Soviet bloc countries.

[6]   Some observers raise concern that there may be double-counting of freelancers on the platforms. While this concern is legitimate, research shows that, in Ukraine, workers operate through over 40 platforms, but on average, each worker is registered on two platforms only (Aleksynska, Bastrakova, Kharchenko, 2018). This is because maintaining an active account can be costly for a worker: it requires investment into creating an attractive account, performing work and gaining reputation. In contrast, the true concern is that many of those who register on a platform remain, in fact, inactive. Nevertheless, these numbers show the extent of interest in this type of work.

2.1.2 Online work in the Russian Federation

Work on digital labour platforms in the Russian Federation has strong national and regional dimensions. Its development kicked off somewhat later compared to developed countries. Researchers explain this lag by several factors, which include a low entrepreneurial culture in the post-Soviet space, low use of technologies by the general labour force and a low initial penetration rate of the Internet (Shevchuk and Strebkov, 2012a; Strebkov, Shevchuk, Spirina, 2015). In the early 2000s, when global online marketplaces for digital freelancers already existed, only some 2% of the Russian population had access to the Internet. This gap, however, has been closing rapidly: by 2012, there were over 60 million Internet users in the Russian Federation, making it one of the largest Internet markets in Europe (Strebkov, Shevchuk, Spirina, 2015). In addition, it was also estimated that over 87 million people from the former Soviet republics and other countries were actively using the Russian-speaking Internet (Runet). As such, Runet overtook German-speaking and French-speaking Internet in terms of the number of users (Strebkov, Shevchuk, Spirina, 2015; Shevchuk and Strebkov, 2015).

Some of the first Russian-based Russian-speaking digital platforms emerged in 2000. Those early platforms copied Western models and did not take into account the specifics of local labour relations. As a result, there was very little local interest initially in them (Strebkov, Shevchuk, Spirina, 2015). It was not until 2005 that the first major Russian-based Russian-language platform, FL.ru (originally Free-lance.ru), oriented towards the specifics of the local labour relations was created (Shevchuk and Strebkov, 2012a). By 2015, it had become the largest Russian-speaking general-profile platform in the region and also in the world, with over 1.6 million registered users (Shevchuk and Strebkov, 2012a). The founding of this platform is considered to mark the beginning of "online freelancing" in the region, not only because it provided a new mode of work and work opportunities, but also because the platform owners actively participated in the creation of a freelance culture. The platform is known to organize Russia-wide conferences of freelancers, it has created a Freelancer's Day and regularly conducts information campaigns about the freelancers' lifestyle (Strebkov, Shevchuk, Spirina, 2015).

Since 2005, the number of both platforms and freelancers in the Russian Federation has increased. Platform work accelerated between 2005 and 2009 with the development of several general-profile and specialized platforms (Strebkov, Shevchuk, Spirina, 2015). It was further spurred by the global economic recession of 2008–2009, and a new economic recession in 2014. Currency devaluation also made Russian freelancers' labour cheaper compared to other countries, making Russian freelancers more attractive also to foreign clients (Strebkov, Shevchuk, Spirina, 2015). By 2014, around 70 digital labour platforms were operating in the Russian-speaking Internet. Six of them had over 100,000 registered users. At the same time, around half of them had fewer than 5,000 users, which was partly due to very narrow specialization (Strebkov, Shevchuk, Spirina, 2015). By 2019, at least one of them had over 3 million active users (www.advego.ru: 3.25 million in September 2019), and at least two had over 1 million users (www.etxt.ru: 1 million, www.fl.ru: +1.6 million in September 2019). Also by 2019, some of the platforms operating in 2014 had stopped functioning while some new platforms had emerged.

Over the past two decades, the Russian digital labour market has evolved significantly, as witnessed by the platform diversification and sophistication. About one third of Russian-language platforms are of general type (any task can be posted on them). Two thirds specialize in a professional field, such as writing, IT, design. Others specialize in HR, marketing, finance, engineering and architecture (Strebkov, Shevchuk, Spirina, 2015; Shevchuk and Strebkov, 2015). Specialized platforms tend to offer more sophisticated tasks and attract more advanced professionals compared to general-type platforms.

Russian-language platforms also witnessed a growing share of Russian-speaking workers from outside of the Russian Federation. For example, the share of Ukrainian freelancers on the FL.ru platform rose from 15% in 2009 to 26% in 2014. Also rising were the number of freelancers from Belarus, Kazakhstan, Moldova, the Central Asian countries (Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan), the Caucasus (Armenia, Azerbaijan, Georgia), and the Baltic states (Estonia, Latvia, Lithuania). A small share of Russian-speaking

freelancers residing in Canada, Germany, India, Italy, Israel, Thailand and the United States were also accessing the platforms (Shevchuk and Strebkov, 2015).

2.1.3 Online work in other former Soviet states

Systematic analytical overview of digital work in other post-Soviet countries is scarce. It seems that the digital markets there developed later than in the Russian Federation and Ukraine, partly due to the general lag in the use of technologies and the Internet penetration rate. The size of the population of other post-Soviet countries and their share of professionals with digital skills is also lower compared to the Russian Federation and Ukraine. Consequently, there was less scope for the development of purely local digital labour markets.

Digital platform workers from other post-Soviet countries are often found on regional platforms serving the Russian-speaking market. Table 3 shows the non-negligible presence of Armenian, Belarussian, Kazakh and Moldovan freelancers on Russian-speaking platforms based in the Russian Federation or in Ukraine. Other countries from the former Soviet Union have only a small number of digital freelancers, at least on the two largest platforms examined here. This can signify either that digital freelance work is not well developed in these countries yet, or that it is oriented towards other types of platforms (and possibly markets). Some local platforms exist, such as Belarussian-based Byelorussian-language platform Фрилансер. бел (Freelancer.bel). However, the local digital market also seems to develop in many ways thanks to the local-market versions of Ukrainian and Russian platforms (example, Kabanchik.ua created a Byelorussian version, Kabanchik.by).

▶ **Table 3. Country of residence of online workers using the two largest regional Russian-language platforms**

		One of the largest Ukrainian-based platforms Freelancehunt.com		One of the largest Russian-based platforms FL.ru	
		Number of freelancers, 2019	Percentage of total, 2019	Estimated number of freelancers, 2014	Percentage of total, 2014
Eastern Europe, Former Soviet Union	Ukraine	262,994	62.7	390,000	26.0
	Russian Federation	127,810	30.5	990,000	62.0
	Belarus	10,637	2.5	66,000	4.4
	Moldova	2,432	0.6	22,500	1.7
Caucasus, Former Soviet Union	Armenia	2,078	0.5	7,500	0.5
	Azerbaijan	754	0.2		
	Georgia	456	0.1		
Central Asia, Former Soviet Union	Kazakhstan	6,962	1.7	31,500	2.1
	Uzbekistan	1,934	0.5	18,000	1.2
	Kyrgyzstan	1,198	0.3		
	Tajikistan				
	Turkmenistan				
Baltic States, Former Soviet Union	Latvia	504	0.1	22,500	1.5
	Lithuania	-	-		
	Estonia	-	-		

Source: For Freelancerhunt.com: https://freelancehunt.com/freelancers (Official web statistics accessed August 2019); for FL.ru: Strebkov, Shevchuk, Spirina, 2015.

2.1.4 Online work in other Eastern European countries

Several studies have attempted to estimate the extent of platform work in other Eastern European countries. Such estimates vary substantially across studies owing to methodological differences. However, they all indicate that the extent of platform work is no longer negligible in this region.

For example, according to a cross-country survey documented by Pesole et al. (2018), the share of adult population that has ever earned income via online web-based platforms (whether online or offline), ranged from 6.7% in Hungary to 9% in Lithuania in 2017 (Table 4). However, the share of workers for whom this work represents the main activity remains substantially lower, and was estimated to be below 2% of the adult population in the majority of countries (Pesole et al., 2018).

The share of workers performing online work is higher than the share of workers performing offline work mediated by the platforms in Croatia, Hungary, Lithuania and Romania; it is highest in Romania. At the same time, in all surveyed countries, a small share of workers work through both types of platforms (Pesole et al., 2018).

▶ **Table 4. Percentage of platform workers in selected Eastern European EU-member states, who have earned income from online platform work**

Country	Pesole et al. (2018)		Piasna and Drahokoupil (2019)
	Percentage of active internet users (estimates), 2017	Percentage of adult population (estimates), 2017	Percentage of adult population (estimates), 2019
Lithuania	13.5	9.1	-
Romania	14.2	8.1	-
Croatia	12.1	8.1	-
Hungary	8.9	6.7	7.8
Slovakia	8.5	6.9	7.1
Poland	-	-	1.9
Latvia	-	-	4.0
Bulgaria	-	-	4.4

Source: Pesole et al. (2018), Piasna and Drahokoupil (2019)

Note: COLLEEM survey question, reported in Pesole et al. (2018) asks whether the respondent has ever earned income from different online sources, among which there are two corresponding to labour service platforms: "providing services via online web-based platforms, where you and the client are matched digitally, payment is conducted digitally via the platform and the work is location-independent, web-based" and "providing services via online web-based platforms, where you and the client are matched digitally, and the payment is conducted digitally via the platform, but work is performed on-location". Piasna and Drahokoupil (2019) asks whether the respondent has ever used "online web-based platforms, which are internet websites or apps through which workers can find short jobs or tasks, such as IT work, data entry, delivery, driving, personal services, etc."

The cross-country surveys documented in Piasna and Drahokoupil (2019) show that the share of the adult population that has ever tried platform work is less than 2% in Poland, around 4% in Bulgaria and Latvia, and slightly over 7% in Slovakia and Hungary. The share of adults who work via a platform at least once a week is below 2% in all surveyed countries. These authors also find that there is a considerable number of individuals who generate income through other online activities, such as selling their possessions online (17% have done so at least once in their lives) or re-selling products (9%).

National studies provide more nuanced views. For example, in Romania, "IT freelance", oriented towards international markets dates to the mid-2000s, which was as a result of the development of the IT industry. The country was ranked first in Europe and sixth in the world in the number of certified IT specialists. With over 64,000 IT specialists, the share of IT specialists in the Romanian labour market is higher than in other IT-leading countries, such as the Russian Federation (Roşioru, 2019; Grigoraş, Tănase, and Leonte, 2017).

Moreover, the IT sector is considered to be the most dynamic in the country and receives extensive government support. While the vast majority of IT specialists are wage-earning employees, work through online web-based platforms in this sector is nevertheless also a known phenomenon in the country. The post-crisis years (2008-2013) was marked by growth of online work due to a better awareness among Romanians of international platforms and the growth of online work through platforms oriented towards the national market. By 2019, Romanians worked through over 20 platforms, of which at least four are Romanian (Roşioru, 2019). The latter included both general and specialized platforms (transcription, editing and marketing).

In Poland, national estimates of platform work vary from 6%[7] (Gumtree and DeLab, 2017) to 11 %[8] (Owczarek, 2018). The development of online work is illustrated by the presence of online web-based platforms in the Polish language, and of Polish versions of international platforms (Sienkiewicz, 2018). Platforms in Polish include general-type (Freelanceria.pl), crowdsourcing-type platforms (MillionYou.com and TakeTask.com), and specialized platforms such as Wpzlecenia.pl (for WordPress), and Napiszeprace.pl (writing student papers). Polish versions of international platforms include Freelancer.pl and Unicloud.pl.

In the Czech Republic, there were at least 30 platforms by 2017. They included Czech versions of international platforms, and also several nationally founded platforms oriented towards the local market (Veber, Krajčík, Hruška, 2016; National Training Fund, 2017).

In Bulgaria, around 23,000 online freelancers were enumerated on the main platforms in June 2015 (Yordanova and Kirov, 2017). By January 2018, this number had almost doubled. The most popular international platforms were Guru and Upwork.

2.2 Profiles of Eastern European workers on digital labour platforms

The emergence of online work also led to increased interest in studying the profiles of digital workers by specialists from a variety of disciplines. Existing studies, whether qualitative or quantitative, draw a relatively uniform portrait of Eastern European digital online workers.

This section is based principally on five large-scale surveys of platform workers conducted at the national level in Ukraine (Aleksynska, Bastrakova, Kharchenko, 2018), Serbia (Andjelkovic, Sapic, Skocajic, 2019), selected Eastern European EU-member states (Pesole et al., 2018 and Piasna and Drahokoupil, 2019), and on the largest regional platform in the Russian Federation (FL.ru: Shevchuk and Strebkov, 2015, 2018; Strebkov, Shevchuk, Spirina, 2015, 2016). The Russian survey was conducted in four waves, which allows not only a snapshot of the worker profile, but also to trace its evolution. The survey findings are summarized in Table 5.

All five surveys show that digital workers are generally young. On average, online workers are in their thirties, and younger than the average offline workers. They are also highly represented in the 25-29 age group (Serbia) and 18-26 age group (Russian Federation). Some additional evidence from Poland (Owczarek 2018) shows that Polish online workers are highly represented in the 18-24 age group.

There is relative gender parity in online work in Serbia, Slovakia and Ukraine. Initially male-dominated, the Russian freelance workforce now almost reaches gender parity: the share of women rose from 33% in 2009 to 46% in 2019. In contrast, in Croatia, there is only one woman for every three men working online.

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[7]   Representative sample of adult Poles who would consider engaging in such activities.
[8]   Sample of survey respondents who declared they had conducted work using an online platform in Poland in the past. In addition, in the same survey, 15% intended to continue to undertake such work in the future (Owczarek 2018).

Online digital workers in most of Eastern Europe are generally highly skilled. The overwhelming share of Russian freelancers has at least some university education (83% in contrast to 30% of all Russian workers). The share of Russian freelancers with post-secondary education has been growing, indicating professionalization of freelancing activities. Ten percent of freelancers have two university degrees, an MBA or a doctoral degree. The most frequent areas of specialization are Science, Technology, Engineering and Medicine (STEM) degrees. In Ukraine, 73% of online workers have a basic undergraduate degree or higher education, and 2% have a doctoral degree. The situation is similar in Croatia, Lithuania, Romania and Serbia. There is also a higher share of workers with ISCED 5 and above level of education in EU Eastern European countries, compared to the general population.

Initially overrepresented by IT professionals, the pool of online workers is now much more diversified and includes a range of occupations. That said, three types of occupations dominate the online freelance market: IT (including software and technology development), content writing, translating, editing, and the creative and multimedia industry (design, work with photos and videos). Gender segregation in online occupations is striking: in all countries, the IT sector is strongly dominated by men, while content writing is strongly dominated by women. This occupational segregation goes hand in hand with market orientation: if freelance IT from Eastern Europe is known internationally, on the local and regional markets it is content writing and graphic design that present the dominant sphere of activity. As a result, more women work in the local online markets, and more men in the international online market.

▶ **Table 5. Summary of findings from surveys of online workers, selected studies and countries**

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Country	Ukraine	Russian Federation	Serbia	Croatia, Hungary, Lithuania, Romania, Slovakia, and 9 Western European countries	Bulgaria, Hungary, Latvia, Poland, Slovakia *
Survey Period	2017	2009-2019 (4 waves)	2018	2017 – 2018 (2 waves)	2018-2019
Reference	Aleksynska, Bastrakova, Kharchenko, 2018	Shevchuk and Strebkov, 2015, 2018; 2019	Andjelkovic, Sapic, Skocajic, 2019	Pesole et al., 2018	Piasna and Drahokoupil, 2019
Sampling	Representative national quantitative survey (administered online); Face-to-face focus-groups for qualitative survey	Online survey on the largest national platform	Collection of open data on 5 international platforms; a quantitative survey; qualitative interviews	Large-scale online survey, representative of internet users between 16 and 74 years of age	Face-to-face interviews, stratified random sampling of the entire adult population
Findings					
Age	Average: 33 years, two third of workers are below the age of 36	In 2019: average age: 33 years About one third are aged 18-26. Average age increased between 2009 and 2019	Over-represented in 25-29 group	Average for all countries: 34 years, which is 10 years less than offline workers. Age distribution skewed towards the young	Average: 37.5 years, which is 4.3 less than other workers
Gender	52% men, 48% women. Gender segregation by tasks, ex.: IT is 88% male, translation is 74% female	Gender parity increases over time: 2009: 67% men versus 33% women; 2019: 54% men versus 46% women. Gender segregation by tasks, IT is 78% male, work with Content writing is 71% female	Women are dominant in traditionally "female" sectors with lower pay (e.g. writing and translation).	Gender segregation by tasks: software development' is mostly male dominated, translation is mostly female dominated. More men have platform work as main occupation	Men are somewhat more likely than women to do platform work (among those doing platform work at least once a year, men represent 57%)
Education	73% of online workers have basic undergraduate degree or higher education, 2% have a doctoral degree	2019: At least some university education: 83% (and 70% completed), in contrast to 30% of all Russian workers. Education level of freelancers increased between 2009 and 2019	The majority is highly educated	High education: over 50% of workers on online platforms; 36.2% of workers on location-based platforms	No differences with other workers.
Occupation / sector (most popular)	Content writing (23%), IT (12%), filling in opinion polls and questionnaires (8%); sales, photo and video (6% each); collecting and processing information (5% each); design, translation and consulting (4% each)	In 2019: IT and web design (26%); graphic design (35%); photo, audio, video (14%); content writing and translation (29%); business services (25 %); engineering (8 %)	Software and technology development (30%), writing and translation (29%), creative and multimedia industry (22%)	Croatia: sales, Slovakia: creative and clerical work; Hungary: creative sector, translation; Romania: microtask and clerical work	Gender segregation by tasks: short tasks and click work is 59% female, creative and IT work is 57% male

| Country	Ukraine	Russian Federation	Serbia	Croatia, Hungary, Lithuania, Romania, Slovakia, and 9 Western European countries	Bulgaria, Hungary, Latvia, Poland, Slovakia *
Earnings	Online work is the only source of income for 25% of freelancers. Average gross earnings for all freelancers: US$260 per month ; which is slightly above the national average gross monthly wage	2013: average gross earnings of freelancers, including online and offline work: 38.000 RUB per month (approx. US$1000). Average gross wages of offline workers: 29.800 RUB. Highest earnings are observed among "pure" online workers; earnings rose over the 2009-2019 period	Online work is the only source of income for one-third of freelancers registered as self-entrepreneurs. The average gross income for all freelancers is about US$1,200 per month compared to average gross salary of US$680	40% of platform workers get less than 25% of their income via platforms, and a further 30% between 25 and 50%	Online work is the only source of income for 19% of platform workers in Hungary, 5% in Bulgaria, 12% in Latvia, 3% in Slovakia, virtually 0% in Poland
Hours of work on the platforms	Paid and unpaid activities: average of 30hours per week. 21% work for over 50 hours per week, 7% work in excess of 85 hours	Platform and non-platform work combined: 52 hours per week on average. 30% report working over 60 hours per week, most of them are self-employed. Highly atypical hours: One-third of workers work less than 35 hours per week, but half of them work over 45 hours. One-third of workers work every Sunday and public days off	83% of digital workers work 40 hours a week or less	42% of platform workers work less than 10 hours a week, and three quarters less than 30 hours a week on the platforms	–
Status in employment	67% are employed offline, of which 32% are self-employed	Around 40% of freelancers are also wage employees, around 10% of freelancers are also employers. The share of wage employees declined between 2009 and 2019; giving way to "pure" online freelancers who do not combine freelancing with other activities	54% are employed offline, with over a half being self-employed	75.7% are employed offline, with the vast majority being employees	Over 70% in paid work offline; of which 18% are self-employed and 61% with full-time open-ended contract
Informality	Over 75% are informal (not registered as self-employed, not paying taxes on online incomes)	Only about 12% of freelancers in 2014 had a written contract with clients (sign of formality)	About two of workers remain in the shadow economy (not registered, not paying taxes on online incomes)	–	–

Source: Authors' compilation based on the reviewed studies.

Note: * The paper provides findings for « internet workers », which is a broad category, including selling goods and renting services through the internet, and "platform workers", which is a narrower term and excludes such activities. Results here are given only for "platforms workers" as the most relevant comparison group.

Over two thirds of online workers in Eastern European EU-member states, the Russian Federation and Ukraine have jobs in the offline economy. In Poland, 70% of platform workers have another, main job (Owczarek, 2018). Thus, the majority of online workers perform online work to supplement their income from other jobs. A relatively high number of online freelancers are self-employed in the offline labour market. In the Russian Federation, for a growing share of freelancers, work through digital labour platforms represents the main source of income: their share increased from 42 to 53% between 2009 and 2014.

Approximately one third of Russian digital freelancers work for foreign clients. These findings are also verified by a joint Paypal - Netfluential survey of Russian freelancers (reported by Kommersant.ru, 2018), which estimated that 14% of the respondents work for foreign clients exclusively. In Ukraine, 34% of online freelancers work for Ukrainian clients, 13.4% work for Russian-based clients, and 5% work for other post-Soviet Russian-speaking clients. Still others work for foreign clients (either exclusively or partly). Conversely, up to 26% of freelancers of the largest Russian-based platform were Ukrainian in 2014. This illustrates the national, regional and international dimensions of online work.

▶ **Figure 4. Market share of IT tasks performed through online web-based platforms in Eastern Europe, by city, 2016 (per cent)**
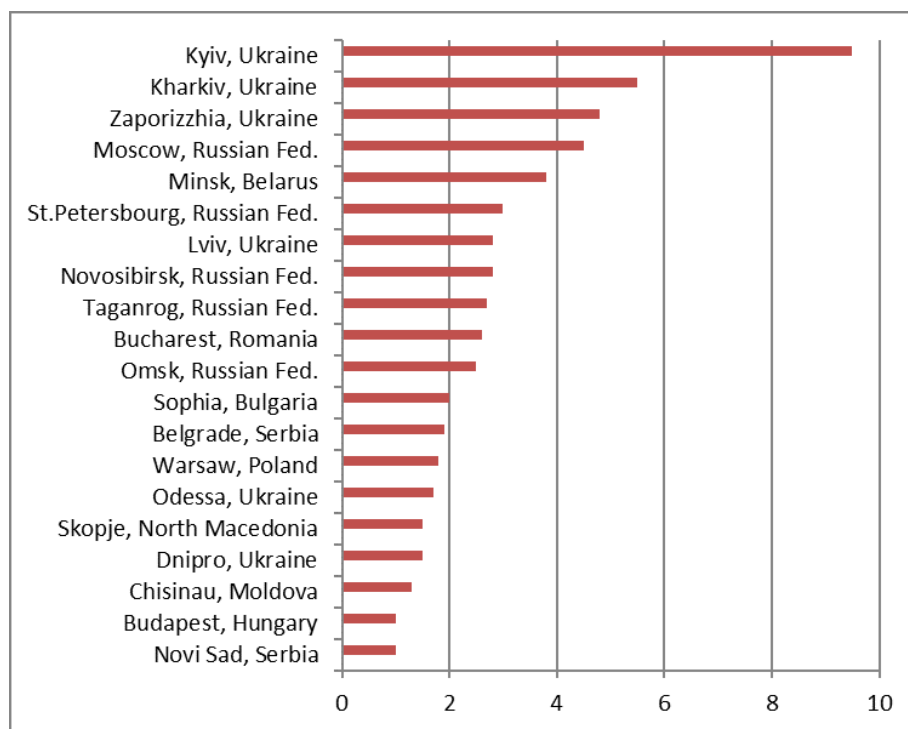
Source: Topsdev, 2017.

Note: 20 countries of Eastern Europe were considered for this study: Albania, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Moldova, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Ukraine.

Finally, most of the digital online workers live in large urban areas, especially in capital cities. Most of the Russian freelancers are located in Moscow and Saint-Petersburg, though their share has been steadily declining to make way for freelancers from other regions. This can partially be explained by better Internet access and access to technologies in the regions, and skill composition of the urban workforce. In case of IT freelancers specifically, 60% of them reside in 20 large cities of the region, ten of which are capital cities (Figure 4).

2.3 Working conditions of Eastern European workers on online web-based platforms

Unless stated otherwise, this section also draws again on the results of large-scale surveys of platform workers (Serbia: Andjelkovic, Sapic, Skocajic, 2019; selected Eastern European EU-member states: Pesole et al., 2018 and Piasna and Drahokoupil, 2019; Russian Federation: Shevchuk and Strebkov, 2015, 2018, 2019; Strebkov, Shevchuk, Spirina, 2015, 2016; Ukraine: Aleksynska, Bastrakova, Kharchenko, 2018), and the findings are summarized in Table 5.

2.3.1 Working hours and work-life balance

The average number of hours devoted to online work usually does not exceed standard work-week hours. In the majority of cases, they fluctuate around 30 hours a week, reflecting the fact that for the majority of workers, online freelance activity is a complementary activity. However, all studies with accessible information record a noteworthy disparity and even a polarization of working hours. For a small fraction of workers for whom online freelance work is their main activity, working hours can easily span over 60 hours a week. Many freelancers systematically work on weekends and holidays. In the Russian Federation, half of online workers work over 45 hours, with one third stating that they work every Sunday and on public holidays, and one third stating that they work 6 days a week including on Saturdays. In Ukraine, 26% of the respondents work for clients for 6 days a week, and one seventh of the respondents work every day of the week. Evidence from other Eastern European countries (Croatia, Hungary, Lithuania, Romania, Slovakia), suggests that, while the average hours spent on online platform work are low, about 12% of the workers reported that this work represents their main activity, and they work over 60 hours a week.

In addition, online workers often report working atypical hours, such as early in the morning, late in the evening, or at night. This occurs for several reasons. For many, day hours are occupied by either regular employment, studies or family responsibilities. For some, this is also because they are engaged in too many projects, or because they have clients located in other parts of the world, requiring communication in different time-zone. Two-thirds of Russian online workers regularly work between 6pm and 12pm, and 30% work between 12pm and 3am. Similarly, in Ukraine, 62% of online workers usually work from 6pm to 10pm, and 30% work between 10pm and 5am.

The situation with atypical hours of online workers is so striking in some countries that researchers even coined the term "autonomy paradox" (Strebkov and Shevchuk, 2019), in which online workers who are able to schedule their time in a flexible manner actually work disproportionately during the night. This has an adverse impact on their satisfaction with work–life balance and often leads to emotional exhaustion (Strebkov and Shevchuk, 2019).

2.3.2 Income earnings

Earning incomes from online work is one of the main motivations for undertaking these activities. The reviewed studies uniformly show that, in Eastern Europe, earnings from online work have so far been quite attractive, whether as a complementary or as a main source of income. For example, in the Russian Federation, earnings of online freelancers from all activities are higher than the average earnings of Russian salaried workers using Internet for work. In Serbia, the average gross income of online workers is almost twice as high as the average gross salary in the country. In Ukraine, in 2017, average gross earnings from online work were around US$260 per month (for 30 hours of work on average per week), which is low in terms of international comparisons, but almost twice as high as the gross minimum monthly wage in the country for a full-time equivalent. In all countries, workers for whom online work represents the main source of income have the highest earnings. These results explain why the majority of workers in these three countries report being satisfied with online work.

Workers performing IT tasks on online web-based platforms have the highest earnings. This is due to the technical skill requirements, but also due to the fact that the clients for this work are more often located abroad. Additional evidence suggests that those working exclusively for foreign clients earn on average 20% more than those working with local clients only (Kommersant.ru, 2018, Russian Federation).

The requested hourly rates for IT work are also among some of the most transparent and easy to track. This is because workers usually display their hourly rate in their profiles on international platforms through which the majority of such work is performed. The requested rate is not necessarily the one that the worker will receive, and in addition the workers also have to pay commission fees for the platform. Clients may negotiate it or propose a project-based type of pay. Nevertheless, on some platforms such as Upwork.com, the displayed rate in the worker profile is a good approximation of what is actually received. A review of IT worker profiles on the major platforms (Topsdev, 2015) made it possible to obtain average requested hourly rates by the workers' country of origin (Figure 5). It also made it possible to obtain paid hourly rates by the clients' country of origin (Figure 6). These figures show that the highest average hourly rates were requested by Estonians and Montenegrins.

Hourly rates requested by Belarussians, Macedonians and Romanians declined between 2014 and 2016. This possibly reflects a rapid take-off of these markets in the same period. In other words, the supply of workers increased but the amount of available work did not increase at the same pace. At the same time, there was an inflow of IT workers with heterogeneous skills, including with less specialized skills compared to the first entrants into the market. This further depressed the average requested rate, as the decrease was driven by these new workers ready to perform easier tasks.

▶ **Figure 5. Average hourly rates requested by IT digital workers in Eastern Europe, in US$**
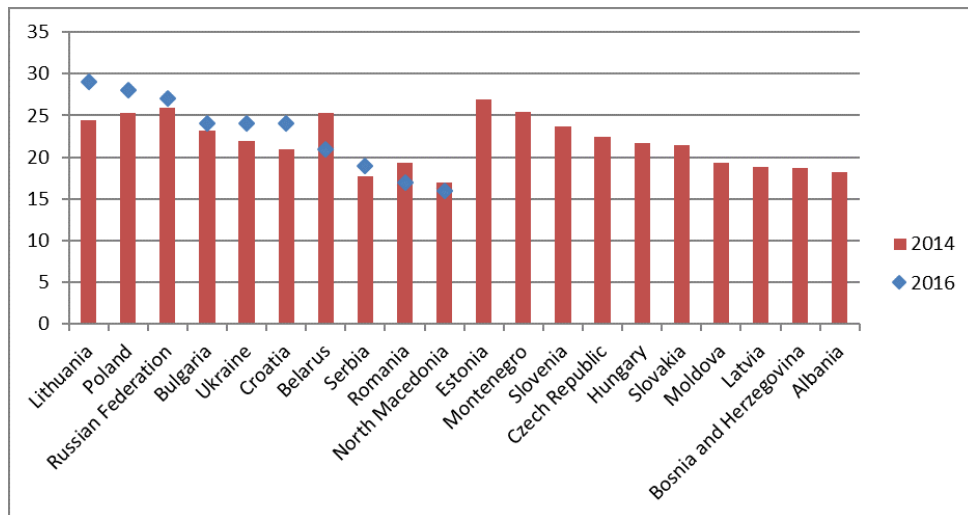
Source: Authors' compilation based on Topsdev, 2015; 2017.

Rates in other countries of origin rose, as did the rates offered by the majority of IT clients. It is noteworthy that the rates in countries with the largest market shares of IT tasks performed (Ukraine) and IT tasks requested (United States) are the same. At this stage, it seems that the market is in search for equilibrium: it is being incessantly modified by new entries of workers and clients from different countries, by penetration of the digital modes of work into new spheres, and by the sophistication and diversification of tasks and worker profiles – all of which translates into changes in average rates even over a relatively short period of time.

Despite these generally attractive earnings, actual earnings on online web-based platforms also feature a significant gender pay gap. The analysis of the factors behind this gap shows that it reflects gender segregation in different occupations (Aleksynska, Shevchuk, Strebkov, 2021), unequal sharing of domestic

responsibilities, especially childcare, and the poorer skills match of women (Shevchuk, Strebkov, Davis, 2015), who tend to specialize in easier tasks.

▶ **Figure 6. Average hourly rates offered by clients of IT tasks, top 10 countries of origin, US$**
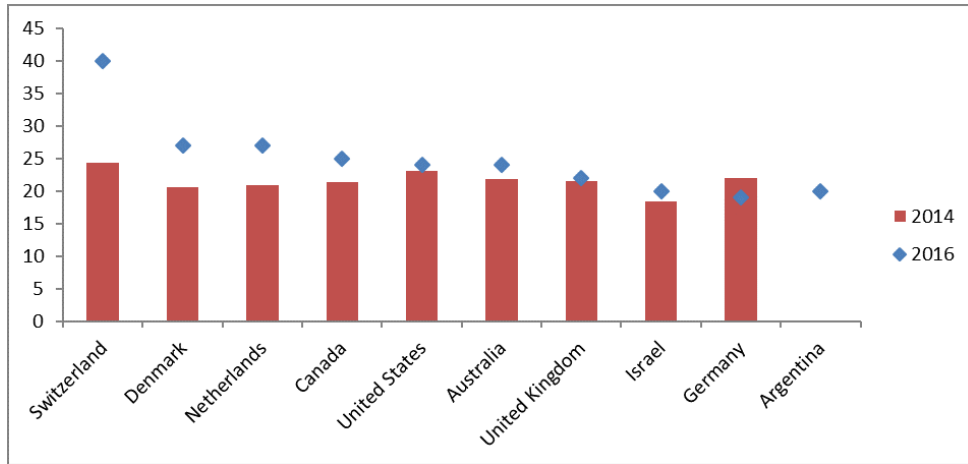
Source: Topsdev, 2017.

2.3.3 Work autonomy

In several Eastern European countries (Croatia, Hungary, Lithuania, Romania, Slovakia), as well as the Russian Federation and Ukraine, the flexibility and autonomy offered by platform work are among the main motivations for doing this type of work.

Despite this, some workers find that they do not have full autonomy in their work. The limits on their autonomy can come either from a platform or from clients. Platforms may deliberately or intentionally require regular presence (by featuring most frequently present workers in the search function). They may also require a certain way of communicating with a client or installing special software to track hours of work and work progress.

Clients, in turn, may also monitor how work is executed. For example, 45% of Ukrainian online workers report that clients give detailed instructions on how to complete the work, and 42% report that clients directly supervise work execution and control work processes. The forms of control vary, and include requests for being available during certain work hours either frequently or all the time (36% of online workers find themselves in this situation) or even outside of regular work hours (21%); providing screenshots of the executed work (27%), or having to install special software on their computers making such screenshots on request of their clients. Control is usually executed using standard Windows software (Excel, Microsoft Project), Google sheets, but also special platform software (time tracker, team app), or other programs, tools and websites, such as Viber, Skype, Time Doctor, Teamviewer, Harvest. Often work progress is to be reported through regular emails.

In addition to this, some workers find themselves somewhat dependent on a platform or on a client. Dependency on a platform stems from the fact that the ratings obtained on a platform are not transferable from one platform to another, and that a worker needs to spend an ample amount of time on one platform in order to build his or her reputation. Dependency on one client may arise if a worker does not have many clients, and most of the income is generated from the work with one client only. Also, some workers report that they receive fixed daily, weekly or monthly remuneration, rather than project-based work. This situation is observed for almost 20% of Ukrainian online workers, and around half of the workers in Croatia, Hungary, Lithuania, Romania and Slovakia. Coupled with limited autonomy, such situations

may result in a disguised employment relationship,[9] either with a platform, or with a client. In Ukraine, it is estimated that up to a half of online "freelancers" are in a grey zone of dependent self-employment or disguised employment. While no estimates are provided, concerns over this issue are also raised in other Eastern European countries (Pesole et al., 2018). The vast majority of online workers nevertheless consider themselves as genuinely self-employed.

2.3.4 Informality and social protection

Work relations through online digital platforms remain largely informal. In Ukraine, three quarters of online workers report working informally. They are not registered with the authorities as self-employed and are not paying social security contributions. About 45% are convinced that no registration is necessary. The rate of informality is higher among online workers than in the rest of the Ukrainian economy. In Serbia, two thirds of online workers are informally engaged. On the largest Russian-based platform, only 12% of freelancers regularly relied on written contracts with their clients. This is the only feature of the Russian-speaking digital labour market that has remained unchanged over the past decade.

As a result, workers on online web-based platforms may risk having adequate social protection, or having no social protection at all. This situation is reported in surveys in Ukraine and Serbia and is stated as a concern for other Eastern European countries. Many of these workers, in fact, remain in wage employment in addition to their online work to benefit from social protection provided by the wage employment. Such practice, however, challenges the sustainability of social security systems and the adequacy of protection that they offer.

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[9]   It is a situation in which there are various indications of the existence of an employment relationship between a worker and a client, even if (one of) the parties claim that such a relationship is absent.

▶ 3 Offline work mediated by digital labour platforms or through mobile apps

3.1 Extent of the phenomenon

In addition to performing work online, digital technologies also make it possible to find work online that is performed offline or in a specified physical location. The two main types of such usage involve:

- Finding offline work through digital labour platforms or mobile apps that serve as job advertising boards for either one-time or regular activities that may be diverse in nature. For example, on the kabanchik. ua platform (similar to taskrabbit.com), tasks range from assembling a piece of furniture to providing plumbing services, printing business cards and babysitting.

- Finding and performing offline work through local app-based platforms that serve as intermediaries connecting clients and workers, usually in one type of occupation, such as personal transport or food delivery services. The difference with the online web-based platforms mentioned above is that the worker and client remain connected through the app *while* the work is executed offline. Among other features, the app has a monitoring role; for example, the time of task execution is not only recorded but may also be decisive, resulting in various bonuses or penalties for the worker, awarded by the app.

In both cases, the geographical proximity of workers and clients is necessary. In other words, both types of *work* are defined mainly by their local dimension. However, the *ownership and management* of some of these platforms and apps may be foreign-based, introducing a regional or international dimension to regulatory issues for this type of activity.

These two types of work are also to be distinguished from the concept of the collaborative economy. Unlike actual work that yields a product or provides a service, activities in the collaborative economy include unprofessional, ad-hoc ways of complementing income, for example through own car sharing or own apartment rental, or selling possessions online. Although individuals proposing such transactions earn some income from them, such income is not considered as income from work. In other words, such income is neither the salary of an employee nor a profit resulting from the work of someone self-employed. For this reason, digital activity in the collaborative economy is not included in this paper. It is to be noted, however, that some of the activities of the collaborative economy (such as Airbnb rental or reselling of items through Ebay and similar sites) have become professionalized over time, blurring the boundary between collaborative economy and the world of work (in terms of products and services).

In 2018, a Eurobarometer survey addressed the question of service provision through local-based digital labour platforms and apps, but did not make a clear distinction in terms of their economic nature (and hence covered both work and non-work activities in the collaborative economy). Survey results showed the trend of general developments of these activities in the EU Member States. As the collaborative economy was included and could not be distinguished separately, the figures were higher than the actual work performed through platforms and apps. The survey showed that 23% of EU residents had ever used services offered via platforms and apps, though only 4% used them on a regular basis (European Commission, 2018).[10] In the Eastern European countries, among those who had used online apps and platforms to access various services, the vast majority used services in the transport sector (over half the respondents)

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[10]   A 2016 Eurobarometer survey also addressed this question. However, a comparison of the results suggests that there could have been a change in the methodology and/or of sampling selection between the two waves. For this reason, only the more recent results are reported here.

and for accommodation. About one third of Eastern European respondents aso used food-related servic-
es, including food delivery (Figure 7).

▶ **Figure 7. Share of users of online apps and platforms, by type of service**
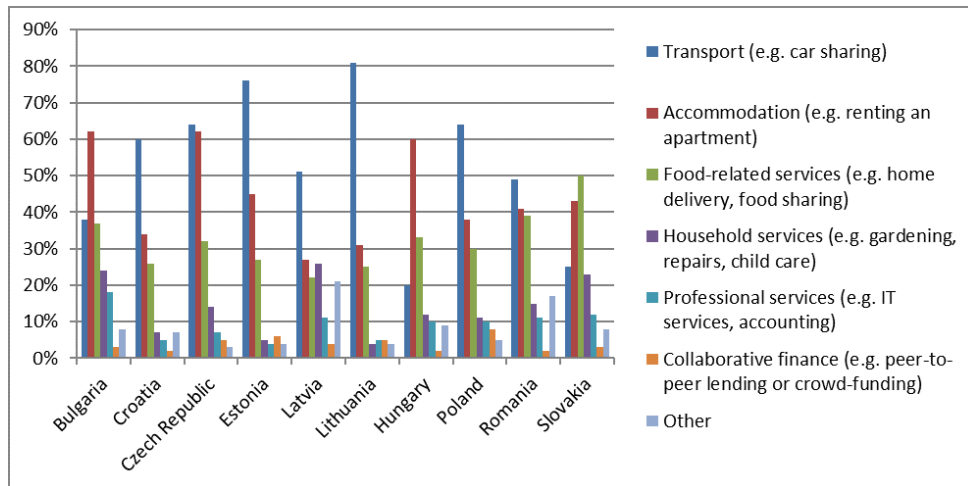
Source: Authors' computation based on Flash Eurobarometer 467, 2018 (European Commission, 2018).
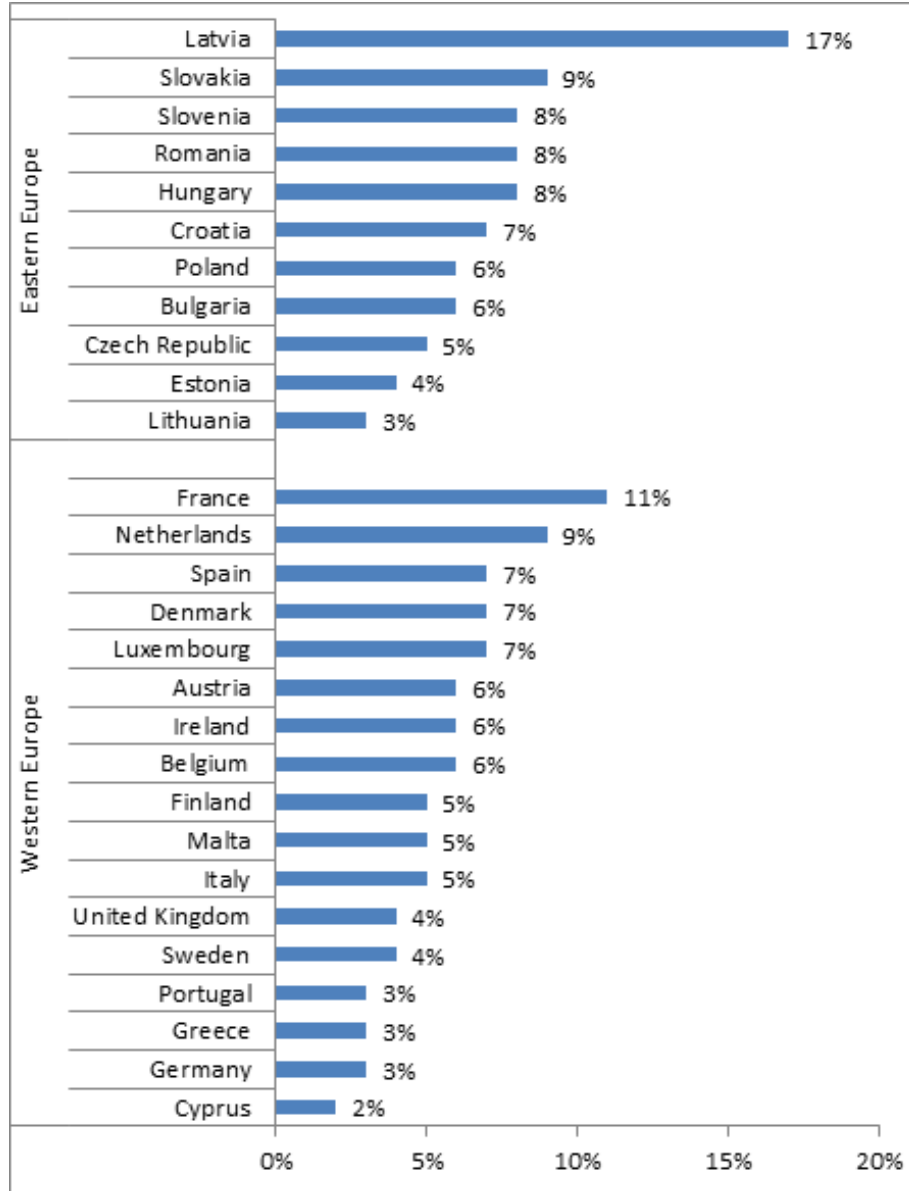
Note: Respondents: population aged 15+ . Multiple answers were possible.

The survey showed that about 6% of Europeans had offered offline services through digital labour plat-
forms or apps, including both unpaid activities and work (European Commission, 2018). In Eastern Europe,
Latvia dominates the market providing transport-related activities, while Slovakia dominates the market for
food-related services. Croatia, Hungary, Romania, Slovakia and Slovenia exhibit levels of service provision
in the collaborative economy that are higher than the European average (Figure 8).

These estimates are relatively comparable to those in other EU-wide surveys. For example, Huws et al.
(2019) also indicate that, in Europe, the highest levels of income generation through local-based apps and
platforms for offline work are in Central and Eastern Europe, notably in the Czech Republic, Estonia and
Slovenia.[11] The highest percentage of workers operating through local-based apps and platforms for offline
work was found in the Czech Republic: in 2019, up to 28.5% of respondents aged between 18 and 55 did
such work at least once a week. Pesole et al. (2018) report findings similar to the Eurobarometer estimates
for Croatia, Hungary and Romania, while Lithuania dominates the offline work mediated by platforms or
apps in Eastern Europe.

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[11]   Including taxi and delivery services, as well as "household services", which cover "occasional, unscheduled work in other people's
homes (e.g. plumbing, repair of appliances, electrical work, carpentry)"; "regular, scheduled, work in somebody else's home (e.g. daily
or weekly cleaning, babysitting, gardening)"; and "personal service work (e.g. hairdressing, massage, manicure)" (Huws et al., 2019).

▶ **Figure 8. Share of individuals who have offered services through online web-based platforms and apps**

Source: Authors' compilation based on Flash Eurobarometer 467, 2018.

Note: Respondents: population aged 15+ .

Compared to the development of online work, the development of offline work mediated by platforms and apps started somewhat later. It was not before 2010 that the first mobile apps for work were popularized. In some countries, local mobile apps developed ahead of foreign-based apps. In others, changes to the traditional ways of work were brought by foreign companies such as notably Uber (for transport), and most recently Glovo (for food delivery). These international platforms, however, appeared in different markets at different times, and they are not uniformly present across countries (Table 6). This partially explains the country-level variations in the extent of digital work mediated by the apps.

▶ **Table 6. Examples of international, locally operating apps-based platforms in Eastern Europe, as of 2019**

Country	Transport			Delivery		
	Uber American, founded in 2009	Bolt, Estonian, founded in 2013	Yandex.Taxi, Russian, Founded in 2011	Glovo, Spanish, founded in 2015	UberEats, American, founded in 2014	FoodPanda, German HQ, founded in 2012
Albania	-	-	-	-	-	-
Bulgaria	- (banned)	-	-	-	-	√
Belarus	√	-	√	-	-	-
Bosnia and Herzegovina	-	-	-	-	-	-
Croatia	√	√	-	√	-	-
Czech Republic	√	√	-	-	√	-
Estonia	√	√	√	-	-	-
Hungary	- (suspended)	√	-	-	-	-
Latvia	√	√	√	-	-	-
Lithuania	√	√	√	-	-	-
Montenegro	-	-	-	-	-	-
North Macedonia	-	-	-	-	-	-
Moldova	-	-	√	-	-	-
Poland	√	√	-	-	√	-
Romania	√	√	√	√	√	√
Russian Federation	√ (merged with a local player)	√	√	-	√ (absorbed by a local player)	–
Serbia	-	√	√	√	-	-
Slovakia	√	√	-	-	-	-
Slovenia	-	-	-	-	-	-
Ukraine	√	√	√	√	√	-

Source: Authors' compilation based on the information provided on international and local websites of each respective company.

The table shows that, on the basis of the presence of some major international platforms, the most dynamic markets for work via apps were in Romania and Ukraine, closely followed by Croatia, Czech Republic, Baltic States, Poland, the Russian Federation and Serbia.

National commentators have noted that in Romania, there has been a real upsurge of novel practices led by international mobile apps and platforms. Ride-hailing is led by Uber and Bolt (former Taxify), as well as a Romanian app, Clevertaxi; bike delivery is pioneered by Foodpanda and more recently, Glovo. In addition, there are at least a dozen local apps for work in various sectors (Roşioru, 2019).

In Ukraine, there are several apps in the transport sector, with the local Uklon, international Uber, and regional Taxify and Yandex being the biggest market players. International, regional and local apps flourish in the delivery sector, accommodation and care. Also popular are online web-based platforms for offline work, such as Kabanchik.ua. The latter is a local analogue of the American TaskRabbit: it is a marketplace for matching clients with workers eager to perform any small-scale work and running errands offline. In the delivery sector, Glovo is increasingly reinforcing its position: between December 2018 and March 2019, the company's turnover increased tenfold; half a million Ukrainians installed the app, and roughly 5,000 workers were providing delivery services in 2019 (Movchan, 2019).

In the Czech Republic, the growth of work through digital apps is common, largely driven by the entry of Uber into the country (National Training Fund, 2017; Euro, 2017). Over 20 different apps and platforms operated in different sectors by 2017. In the accommodation sector alone, there were at least five players in addition to Airbnb, including Flipkey, HomeAway, House Trip, Vacation Rentals and Vrbo.

Poland is estimated to be Uber's third largest market in the European Union (The Krakow Post, 2017). Here, several other transport and small parcel delivery apps have also flourished. Examples include local JadeZabiore and BananaCar, as well as local versions of international MyTaxi and Bolt (Sienkiewicz, 2019). There are also several Polish market-oriented platforms that only match clients and workers, but work is performed offline. Those include Oferia.pl (with over 220,000 registered workers as of 2019) and Sir Local (Sienkiewicz, 2018). In Serbia, Uber is not present, but a local prototype, CarGo, is operating in a similar manner.

The owners of foreign apps come not only from countries outside the region (such as Uber), but also from countries within the region. For example, among some of the most widely used apps, Bolt (Taxify) is an Estonian transport app, which first entered into operations in the Eastern European market before moving to the rest of the world in an Uber-type expansion. In several Eastern European countries, Bolt is Uber's main competitor. Similarly, Yandex.Taxi is now an international company. Having originated in 2011 in the Russian Federation, two years ahead of Uber, it is operating in all 15 former Soviet republics as well as in a number of Eastern European countries. Hopin is a Slovak transport app, which started its services in 2012, ahead of Uber. It operates in Bratislava, Košice, Michalovce, Poprad, Humenné (Slovakia), Prague, Ostrava (Czech Republic), Ljubljana (Slovenia), and Kyiv (Ukraine). It is also the only app that complies with all the legal regulations in the transport sector, at least in Slovakia. The Ukrainian platform for offline work Kabanchik.ua recently created a local-market version for Belarus and Kazakhstan.

Significantly, there is considerable variation between countries in terms of how governments and local markets reacted to the emergence of different apps and their proposed business models, with some restraining the spread of work through apps, while others accelerated their expansion. In the case of Uber and other apps in the transport sector, for example, the responses were quite varied (Table 7). Some countries, such as Bulgaria, banned Uber very early on, sending a strong signal to market players that digital apps not complying with local laws would not be allowed to operate. Others such as Belarus and Hungary, amended laws to bring Uber and Uber-type companies under the scope of local regulation to require compliance with it. Still others, such as Estonia, introduced major legal changes to liberalize the traditional market to fully embrace the apps-mediated mode of work beyond professional services. In the Russian Federation, Uber lost the market war to the local player, Yandex.Taxi; with Uber Eats being completely driven out of the market (see Box 1). This defeat was partly the result of the government support given to the local player in the form of a "Google tax law", which required foreign companies selling e-content via the Internet, including Uber, to pay an 18% value added tax. But in all cases, digital technologies seem to have disrupted the modes of work in operation, as they have allowed platform companies to enter into traditional sectors (sometimes increasing the extent of the informality of those sectors), augmented competition (sometimes unfairly), and changed the existing rules of governance.

▶ **Table 7. The Uber transport app: experience in selected Eastern European countries**

Country	Year of entry	Situation as of September 2019
Belarus	Spring 2018	17 July 2017: A Law No.50-3 "On Changes and Amendments in the Law of Belarus 'On passenger transport and transport'" in force since January 2018. The law provides a new definition of taxi service, according to which Uber and Uber-type companies are considered as taxis. As such, they must comply with the taxi regulation in effect. At the same time, some previous regulation was relaxed, such as the requirement to have a taxi meter for any taxi provider. The law seeks to eliminate non-professional drivers from the market and prevent unfair competition.
Bulgaria	December 2014	30 June 2015: Banned by decision of the Supreme Court on the grounds of unfair practices (drivers working without official driving licenses or professional licenses).
Croatia	2015 (Zagreb), mid-2016 (Split, Dubrovnik), 2017 (SIbenik)	February 2018: The High Misdemeanor Court of Croatia has ruled that Uber was operating illegally, providing a taxi service without the required taxi license. The court rejected Uber's appeal in the first instance and charged a fine, but did not ban the company from operation. At the time of writing, the government was considering new legislation to liberalize the taxi market and regulate the work of Uber-type apps.
Czech Republic	2014 (Prague)	April 2017: The Brno court ruled that Uber drivers could not provide services without a taxi permit. All cars must be marked as taxis and feature a taxi meter. However, in June 2017, the Czech Court of Appeal lifted a ban on Uber in Brno. In 2018, Uber announced that it reached an agreement with the Minister of Transport to continue operations provided that drivers were licensed.
Estonia	2015	2017: A Bill of Amendment to the Public Transport Act outlines the conditions for providing transport services mediated by digital electronic platforms and regulates their position with respect to traditional taxi services. As per this law, neither traditional taxi drivers nor new digital providers need comply with the previously required conditions of professional training. Rather, each provider has an obligation to ensure their own training provision to their drivers.
Hungary	November 2014	July 2015: A new national regulation was passed (Government decree 176/2015 (VII.7.), extending the scope of provisions to cover not only traditional taxi services but all "car passenger services". Thus, Uber has become subject to the overall national regulation on taxi services. The new law also allowed the Hungarian authorities to block "a provider of taxi services operating without a proper dispatch center" for up to one year. As a result, Uber suspended its operations.
Latvia	End of 2013	New amendments to the Road Transport Law, adopted by the parliament on 28 September 2017 and entered into force on 1 March 2018, according to which, Uber and any other similar app or company is obliged to obtain a license for operations. Additional basic requirements for drivers regardless of the service provided (taxi or ridesharing) were introduced: 3-year driving experience and an obligation to register in the Enterprise Register as a legal entity. At the same time, the process of obtaining licenses was simplified.
Lithuania	End of 2015	29 September 2016: Amendment to the Road Transport Code, in force since 1 January 2017. New provisions allow passenger transport to be organized by both natural and legal persons in both taxi and ordinary passenger cars, in return for tax compliance. Service providers are also subject to other requirements by the Rules on the Transportation of Passengers by Cars in Exchange for a Payment and by Taxi Cars, adopted in December 2016.
Poland	2014 (5 cities)	April 2019: A law is being discussed that will require Uber and other ride-sharing companies to use only licensed taxi drivers from 2020 on. Meanwhile, Uber opened a regional office to manage its operations in Poland, Estonia, Lithuania, Croatia, Belarus, Azerbaijan, Kazakhstan, and Ukraine. February 2018: Uber Eats was launched.
Romania	February 2015	The association for monitoring taxi operations in Transylvania (Asociatia de Monitorizare Taxi Transilvania), and the confederation of authorized transport operators in Romania (Confederatia Operatorilor de Transport Autorizati din Romania, an employer confederation), filed a lawsuit against the Dutch company Rasier Operations BV and Uber (SC Uber Systems Romania SRL), which holds the license to use the application developed by Uber Technologies Inc., San Francisco, California. In decision 1192/2018, the court concluded that Uber practices constituted unfair competition on the grounds that the application was not owned by the defendants. At the time of writing, there are ongoing discussions in the government about a new law to regulate Uber-type apps.
Russian Federation	2013	Uber was merged with the largest Russian player on the taxi market, Yandex. Taxi. Uber Eats, in contrast, had to stop its operations and withdraw from this market.

Country	Year of entry	Situation as of September 2019
Serbia	No presence	October 2018: the National Assembly adopted amendments to the Law on the transport of passengers in road traffic, requiring workers of apps to have professional licenses. As a result, Uber has not ventured to enter the Serbian market.
Slovakia	August 2015	March 2018: Bratislava District Court I ruled that Uber is practicing unfair competition and forced Uber to suspend its services for one year. Uber resumed services one year later, claiming that it operates only with licensed drivers.
Ukraine	Mid-2016	No public regulation at the time of writing. Law proposals to allow passenger transport by private persons in exchange for simplified licensing and a flat-rate tax are being jointly developed by key market players.

Sources: Authors' compilation based on national sources. Bulgaria: Duncan et al., 2016. Slovakia: Sedláková 2018; Reuters.com., 2018. Hungary: Budapest Business Journal, 2017. Croatia: Pavlic, 2017. Romania: Roşioru, 2019. Czech Republic: Reuters, 2019. Poland: Reuters, 2019. Russian Federation: Vedomosti.ru, 2018; Vox.com, 2017. Belarus: Avtobiznes, 2018. Ukraine: Samojlenko, 2018, AIN, 2019. Estonia: National Training Fund, 2017. Lithuania: OECD, 2018b. Latvia: OECD, 2018a. Serbia: Bjelotomic, S., 2018; Stojković Attorneys, 2018.

▶ **Box 1. Uber in the Russian Federation**

Uber entered the Russian market in 2013. By that time, the market was already dominated by other players of digital taxi hailing, in particular by the local app Yandex.Taxi, which detained 20% of the market share. Initially, Uber undertook the usual strategy of subsidizing the rides in order to obtain a larger market share. Although it had managed to gain as much as 23% of the market share by 2017, becoming the second-largest player, Yandex.Taxi had reached 50% market share by that time. Uber, which had spent over $170 million in subsidized rides over three years to catch up with the local market leader, had entered the Russian market too late. Nevertheless, it managed to somewhat disrupt the market by driving other players out. While the "market war" with Yandex.Taxi could have continued, in 2017 the Government of the Russian Federation announced changes to tax legislation (known as the "Google Tax Law"), requiring foreign companies selling e-content via the Internet to submit information on their sales in the country, and pay an 18% value added tax. This "push" from the government intended to support local players in circumstances of the often unlawful competition from foreign-based locally-operating apps such as Uber. Consequently, there was no point in Uber continuing its already unprofitable activity. Uber lost the "market war" and accepted the merger with Yandex.Taxi, Yandex controlling a 56% stake in the company, and Uber 35%. A new application, UberRussia, was launched, operating in the Russian Federation, Azerbaijan, Armenia, Belarus, Georgia and Kazakhstan and by 2019, in 250 cities. Uber Eats, in contrast, was fully absorbed by Yandex.Food and had to stop its operations and withdraw from the market.

Sources: Vedomosti.ru, 2018; Forbes, 2017.

3.2 Profiles of Eastern European workers using mobile apps and online web-based platforms for offline work

The profile of workers using mobile apps differs substantially from the worker profile of digital freelancers operating online. Four key factors contribute to this difference:

First, most popular digital platforms for offline work, as well as mobile apps, emerged in traditional sectors of activity such as transport or care. The pool of individuals working via apps thus included first and foremost workers who were already active in these sectors, either formally or informally. Most of them had a relatively low level of skills. At the same time, given that workers switching to apps were somewhat more technologically savvy than others and open to trying new technologies, they came rather from a mid-range of skill distribution. The apps did not change the nature of the work per se (i.e., drivers still had to drive), but helped to match client demand to the supply of work. This meant that new skills acquisition was neither possible nor required. This was also different from work conducted on online web-based platforms, which, in addition to being concentrated in intellectually and creativity demanding sectors, in many

instances came hand in hand with principally new types of tasks (eg. demand for IT development) or new modes of work (eg., competitive programming).

Second, some apps enabled non-professionals to step into the market previously accessible exclusively to professionals. For many of them, work through apps represented secondary work and an additional source of income. This had the effect of flattening the skill distribution of workers operating through the apps.

Third, because apps had very low requirements on who could do the work (at least initially, virtually anyone could sign up with little formal checking), there was also self-selection into these kinds of tasks by individuals who otherwise had limited employment prospects. This included not only workers outside of the legally defined scope of a profession (such as licensed drivers in case of transport apps), but also, for example, migrant workers, at times without required visas or work authorization. For instance, anecdotal evidence from Poland showed that a high number of Indian and Ukrainian workers were working for Uber Eats. Some of them entered the country on student or tourist visas, and Uber did not verify whether they had work authorization (Szostak, 2019). In Moscow, evidence suggests that the majority of drivers working via apps come from Central Asia (Radio Freedom, 2018).

Finally, work through mobile apps and local platforms for offline work is performed locally and does not provide access to better-paying clients located abroad. As a result, workers speaking foreign languages and having a high level of technical skills, might prefer to use international online web-based platforms to access higher-paying tasks.

Given these factors, unlike workers on online web-based platforms, workers using mobile apps in Eastern Europe have education levels similar to those in the offline labour market, and sometimes even lower than them (Pesole et al., 2018). These are also on average 10 years older than online platform workers, and resemble the workforce profile of workers in the traditional labour force (Pesole et al., 2018; Huws et al., 2019). Certain particularities, though, reflect also the particularities of each sector. For example, the transport sector is predominantly occupied by male workers, while the accommodation and cleaning sectors are predominantly occupied by female workers. In food delivery, there appears to be a higher presence of young "strong and sporty" men (Pesole et al., 2018; Huws et al., 2019).

This worker profile is not static, however, with several factors contributing to its constant evolution. First, as more apps enter each sector and work through apps becomes dominant, technology simply becomes a mediator of professional activities rather than a generator of new work opportunities. Evidence from the Czech Republic and Slovenia, for example, shows that the apps for private property cleaning gradually became classical business subjects, such as traditional professional cleaning agencies (National Training Fund, 2017).

Second, regulations play an important role in shaping the worker profile. Interestingly, this is less influenced by general labour laws and more often by competition laws, tax laws and laws regulating activities in each specific sector. For example, Uber and Uber-type applications initially allowed non-professionals to perform tasks, similar to the professionalized transport sector. Regulatory responses throughout the region widely recognized these apps as performing passenger transport services rather than purely "client matching" services. This has created new obligations for the workers using these apps to comply with the regulations on professional licensing, insurance, social security contributions and taxation. Thus, following the adoption of these regulations, the pool of workers shrank back to include mainly sector professionals and a few former non-professionals who, after experiencing this work thanks to the app, chose to join the profession. For example, evidence from Belarus and Hungary confirms that as a result of legal changes that brought Uber under the scope of regulations in the transport sector, non-professional drivers massively left the application (Avtobiznes, 2018 Duncan et al., 2016). As a result, the profile of a worker operating via an app again started to resemble the worker profile in the transport sector. Similar changes can be expected in other sectors if their activity becomes more regulated.

3.3 Working conditions: linkages with institutional factors and business models

The one common feature across apps in Eastern Europe, as in the rest of the world, is that workers are not considered to be employees but self-employed. As a result, workers face a particularly high risk of informality. This is especially true of those apps and platforms that have been operating in the grey zone, outside of the scope of regulations and positioning themselves as "intermediaries" of the "sharing economy", and allowing non-professionals to exercise economic activity through them.

In the absence of formal research, it is difficult to conclude whether the emergence of work through apps has raised informality levels. Some commentators suggest that these developments have only revealed an already high level of informality by making invisible economic activity visible. For example, city hitchhiking was not unusual and not formally prohibited in several Eastern European countries; but its extent was revealed by the arrival of the apps in the transport sector. Others reckon that the digital economy has amplified an ongoing informalization trend, with the "new business models" promoting the idea that informal may be "normal". They have also amplified the trend towards precarity: after all, apps do not promise that there will be work when a worker is making himself available for work, and can unilaterally shut down an account at any time. A "portrait"-type survey of Slovak and Hungarian apps workers shows that, while their earnings may be comparable to those of an average worker in the traditional or offline economy, they nevertheless face precarious working conditions (Kahancová, Meszmann, Sedláková, 2019). The majority of workers do not pay social security contributions and are not covered by social security or private insurance against professional and health risks. The vast majority of these workers, however, work through apps to complement pay from their main job. This is a universal finding of all studies. As such, workers rely on social security protection through their main job (Kahancová, Meszmann, Sedláková, 2019; Pesole et al., 2018).

The situation with informality is also quite dynamic. It may be that the increased informality is merely transitory, as technologies carry an opportunity for formalization: if they allow for cashless transactions, they can also potentially be used to monitor economic activity by public agents, prevent tax evasion and enable social security payment, prevent fraudulent payment and cybersecurity risks. Here, policy responses may be helpful to ensure that the formalization of previously informal activities is in fact progressing.

In addition to informality, employment status determines other working conditions to a large extent. But because work through mobile apps is sector-specific, working conditions are distinct for each sector. Moreover, they are strongly shaped by two other related factors.

The first concerns the legal environment of each country. Countries differ in terms of whether they have a legal framework and a sufficiently developed judiciary practice in place to determine the existence of an employment relationship. They also differ in terms of the degree of compliance with their laws and the strength of the enforcement bodies (labour inspectorates) overseeing implementation. This has crucial implications for workers operating via local-based platforms and apps. The concern is that the way in which some apps operate creates a situation of a disguised employment relationship, whereby apps serve a *de facto*, but not a *de jure*, role of employer. Interestingly, the risk that a worker would find themselves in a disguised employment relationship seems to be more severe in countries with weak legislation governing employment relationship, and weak enforcement. Also, apps that are active in several countries (such as Glovo), seem to adapt their business models to practices in the local environments. Slow public reaction to redress these situations, coupled with the demand for cheap services, augment the longevity of such businesses and hence the duration of the impact on workers.

Thus, a related factor – and perhaps by far the most important one shaping working conditions – is the business model adopted by each particular app. The elements of such business models include price-setting and remuneration-setting mechanisms, commissions, direct work or work via intermediaries, monitoring of hours, various incentives to continue working, and rating systems. Unlike online work, it is rare that work via an app can be performed several times, or on a prolonged basis, for the same client. Moreover, clients

have little say over remuneration. Thus, in a much more systematized manner, it is an app that exercises control over remuneration, while workers are merely price-takers in this relationship.

The differences in business models translate into different working conditions across app users. In fact, it is because of their great variation from one app to another, and from one country to another, that policy responses have been quite specific to apps, to their sectors of activity, and to countries.

Turning to specific examples, Uber systematically practiced the same market-entry behaviour in each new market: seeking to attract new drivers, it initially set ride rates below the market rates, subsidizing its drivers. Little by little, as the pool of drivers grew, said subsidies decreased. The commissions that Uber charges its drivers did not diminish, however, in fact often increased. On average, over 2014-2019, Uber workers were charged 25% on each performed task. Moreover, in Eastern Europe, workers often do not work directly through Uber apps, but through intermediaries, which also charge commissions. As a result, total commissions may represent up to 40% of earnings. Uber also practices a "dynamic price list": it offers higher rates when there is a particularly high demand for drivers, such as on Friday and Saturday nights.

Several immediate consequences result from this business model. First, over time, the earnings of Uber drivers diminish. To earn a decent living, workers are obliged to put in an increasingly greater number of hours into this work – to the detriment of their own health and the safety of their passengers. Second, owing to dynamic pricing, workers are selecting to work during atypical hours, including at night. The presence of intermediaries can also lead to various types of abuses, including arbitrary additional charges, withholding of payment and in general, pressure on any voicing of worker concerns.

Evidence from Poland shows that Uber drivers work on all days of the week, and especially on week-ends, for 12 hours a day. They regularly drive to major city centers from neighbouring towns, and sleep in their cars before driving again (Szuba, 2018). In the Russian Federation, where Uber was merged with the local Yandex.Taxi, according to the head of the association Forum Taxi, "if drivers were to follow labour legislation, they would not earn anything" (Radio Freedom, 2018). Workers of this joint app had to work up to 70 hours per week in 2017–2018 in order to be profitable. Some migrant workers practice "shift methods": they share a car for 12-hour shifts for two to three months, before returning to rest in their home countries, and are replaced by other compatriots. This model, however, is not sustainable for local drivers wishing to work on a permanent basis (Radio Freedom, 2018). Moreover, it comes with a high toll on health and safety. According to official statistics, between 2015 and 2017 car accidents involving taxi drivers rose by 35% (Analytic Center of the Government of the Russian Federation, 2018).

But it seems that it is the business models of apps in the delivery sector that result in particularly drastic working conditions for their workers. For example, Uber Eats, in addition to practicing similar strategies as Uber for transport, also often requires that workers perform a certain number of orders per week to be paid at all (situation varies across countries). Moreover, UberEats intermediaries may decide whether or not to give a contract to the worker, and when and how to pay the worker – sometimes delaying payment or giving pay outs that are below the incurred expenses (Szostak, 2019). Workers are also required to use their own equipment (cars, bikes, bags), which are not reimbursed by the app (Uber Drivers Facebook Group, 2019; Alekseeva, 2019). Usually, they are paid for the delivery but not for the time they need to return to their original location, even if the delivery is outside the city. As a result, not only is pay for work meager, but workers may also find themselves in debt towards intermediaries (eg., Poland: Szostak, 2019).

Yandex.Food, which acquired Uber Eats in the Russian Federation, and its main competitor in the country, Delivery Club, exercise similar practices. In addition, workers of these apps do not have the right not to work when they are sick or want to go on holiday: they may be disconnected, have their rating reduced because of interrupted availability, or even receive a fine due to "absence" or "being late at work" (Petljanova, 2019). A delivery which takes a longer time than that calculated by the app results in financial penalties. Anecdotal evidence shows that workers of these apps may be working up to 12-14 hours a day, covering 40 to 60 kilometers per day by bike or on foot. In 2019, a 20-year old worker in Saint-Petersburg died of a

heart attack during delivery for Yandex.Food, and there was another case of a Delivery Club worker's death, (Petljanova, 2019).

Another example is Glovo, a Spanish courier app that operates in Croatia, Romania, Serbia and Ukraine. It specializes in food delivery (restaurant pickup), supermarket purchases and small parcel delivery. Workers can work either using their own transport, or lease the means of transport from the company. They also have to purchase certain equipment (delivery bag).

In Ukraine, when the company stepped into the market, it offered hourly pay and a system of bonuses for more than 10 deliveries per week. But once it had attracted a sizeable number of workers, it switched to payments per order and per kilometer, with payments disbursed once a week. Moreover, a new system of bonuses was applied, with bonuses awarded starting from 20 deliveries per week (Glovo website; Dudin, 2019, Movchan, 2019). The app unilaterally changes both the rates and the rules on bonuses, while workers who are unhappy with such changes are asked to leave the app. Their working hours are regulated by an app: it switches off a user for a "one-hour lunch break" if work is performed for over 8 hours per day. However, it also decreases the ratings of those who take breaks more often. Workers are also given specific instructions about transporting food, and their attire. There is also evidence that this app has access to other apps installed on a worker's phone. It can therefore monitor comments about Glovo made on social media and unilaterally close a worker's account, for example, in case of "negative" comments on Facebook, as stated in its Terms and Conditions (Glovo website; Dudin, 2019, Movchan, 2019).

But despite demonstrating all the attributes of an employer, the app does not recognize that it is in an employment relationship with its workers. Workers are responsible for their own insurance, social security contributions and tax contributions. The company does not check compliance with such social obligations, and neither pays social security contributions on behalf of workers. In some countries, like Ukraine, the app sets hourly rates and bonuses below the minimum wage rate, which some have argued to be predatory pricing (Glovo website; Dudin, 2019, Movchan, 2019).

Consequently, in order to earn a reasonable living, workers have to work extremely hard and put substantial hours into this work simply to break even, at a very high cost to their health and safety. In Ukraine, it is estimated that the average time to make a delivery with Glovo is 45 minutes. To complete 100 deliveries, for which one can get the highest bonus, a courier must work 75 hours a week, which entails 11 hour shifts every day without a day off. This is under the conditions that orders come regularly and smoothly, which almost never occurs. In real conditions, workers need to spend 14 hours per day, seven days per week to be eligible for the maximum bonus. The fact that no bonuses are paid for less than 20 rides per week also means that it is not profitable to work for the app as a part-time activity (Movchan, 2019).

Workers have started to complain about being mistreated by the company. They also report extreme fatigue from this work, despite the fact that most of them are 20-30 year old men. There is also a reported case of a Glovo courier death in a road accident, possibly because of the pressure to deliver fast causing inattention. The courier's family did not receive any compensation (Movchan, 2019).

Given this context, it is clear that policy responses need to address the issues of working conditions at several levels simultaneously: to clarify worker status in employment vis-à-vis the apps, to regulate working conditions regardless of the status of employment, and to address the informality and professionalization issues arising through tax, social security and competition laws. The next section examines country-specific examples of such responses.

▶ 4 Regulating digital work

The developments in digital work practices outlined above involve several layers of complexity. They include a diverse set of markets (national, regional and international), differences in platform business models for online work and platforms for offline work, sectoral peculiarities and the legal frameworks in effect in each country. As a result, there is no one response to effective regulation of digital work.

A review of national attempts undertaken to regulate digital work shows that policy responses included changes in labour laws, changes in laws regulating specific sectors of activity, but also elaborating measures for better enforcement of existing regulations, formalization and tax compliance. The regulatory response to digital apps was swifter than the response to online work, primarily because digital apps carried more risks of disrupting existing modes of work, systematically created unfair competition within local markets, and more often resulted in poor working conditions. Despite the markedly regional and international dimensions of digital work, policy responses were conducted mainly at the national level.

4.1 Collective responses: the challenges to representing and organizing digital workers

Traditionally, one of the first steps to creating regulatory responses for any new type of work has been worker organization, representation in new or existing trade unions, and collective bargaining. The development of digital markets, however, has so far proven particularly challenging to both worker organization and representation worldwide (Johnston and Land-Kazlauskas, 2018).

The key challenge, first and foremost, concerns the fact that most digital workers, irrespective of whether they work online or offline, are classified as self-employed. As such, they fall outside the scope of labour laws in effect regulating the employment relationship. Usually, they legally cannot be part of a trade union. Collective bargaining agreements often cannot apply to them, and they do not have a clearly attributable employer who would serve as a collective bargaining counterpart. Another key challenge is of a practical nature related to platform fragmentation and dispersion of workers across different platforms, sectors of activity and types of work performed. Most workers on digital labour platforms are dispersed, and any interaction they may have is virtual at best. Furthermore, as many digital workers perform a variety of activities, sometimes in different sectors, it is not always clear which trade union could best represent their interests.

These challenges are common to all countries worldwide, including in Eastern Europe (Akgüç et al., 2018; ESDE, 2018). In Poland, until only recently, the self-employed or those working under civil contracts officially could not be members of a trade union (Sienkiewicz 2019). The situation may be changing following the Constitutional Tribunal's judgment of 2015, which ruled that the limitation of trade union membership to employees is unconstitutional, and that any worker who is not an employer can be a trade union member. The ruling is yet to find its way into the legislation regulating trade union activities (Sienkiewicz 2019). In Slovakia, trade unionists argue that the "structural obstacles" within their traditional organizations prevent digitals workers from joining unions (Sedláková 2018).

Around the world, three main response strategies have been activated: they include addressing worker misclassification where possible, extending collective agreements to all workers in a sector regardless of their employment status and creating new alternative organizations of digital workers (Johnston and Land-Kazlauskas, 2019). The role of traditional trade unions has been paramount in this regard.

However, recalling the regional context can help clarify why these strategies have been relatively modest in Eastern Europe so far and why, unlike in Western Europe, trade unions have not been particularly active yet with respect to digital workers. The first reason is the general weakening of trade unions. Since the collapse of the communist regimes, trade unions have been largely seen as a legacy of the past and trade union membership has been in a continuous decline (Figure 9). Looking at the most recent available data, regional trade union density is just below 20%; it is below 10% in Estonia, Hungary and Lithuania. In some countries, it is also particularly weak or inexistent in the traditional sectors of accommodation services or transport – precisely where digital work is spreading (Hungary, Slovakia: Kahancová, Meszmann, Sedláková, 2019). In some countries, such as Romania, trade unions were further weakened by legislative changes adopted during the crisis (ETUI, 2019). The limited number of trade union members, limited capacities and funding contrasted with the high investment needed to organize a dispersed and fluid pool of digital workers, resulted in a limited or non-existent collective responses to issues raised by digital work.

▶ **Figure 9. Evolution of Trade Union Density (in per cent), Selected Eastern European Countries**
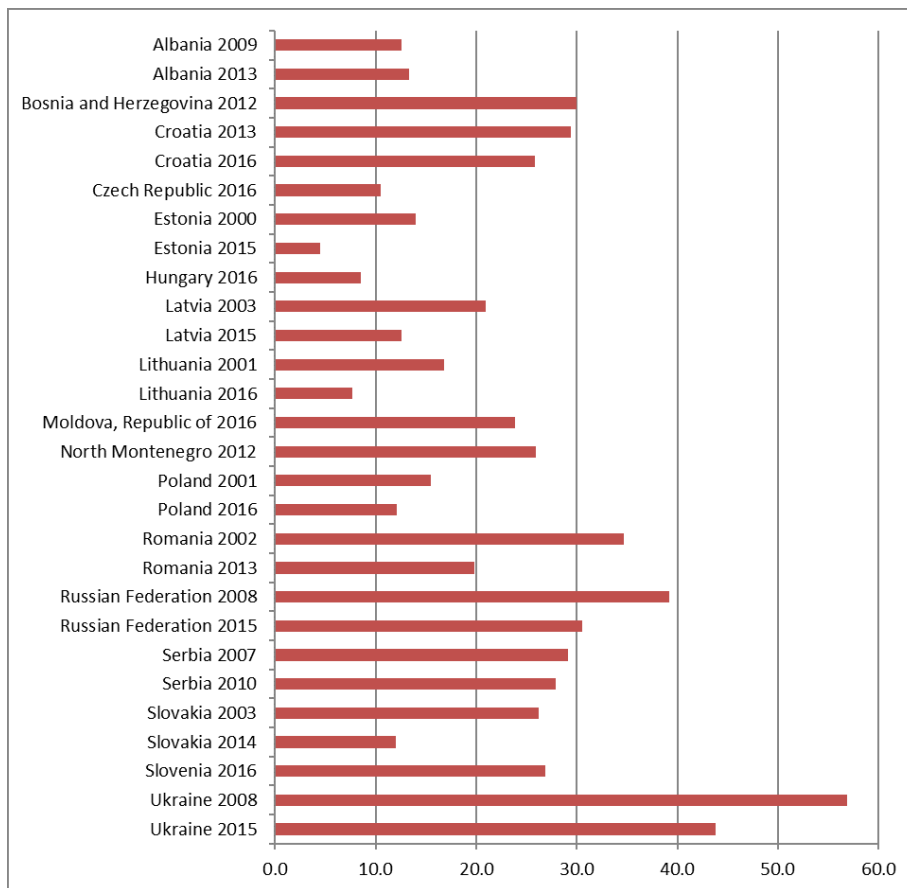
Source: ILO STAT.

A second reason is that, with the persistence of informal employment and the rise of various forms of non-standard employment in the post-crisis decade in some countries (Kahancová, 2016, Meszmann 2016), work through apps is largely seen as a general continuation of the informalization and precariatization trend. This view is partly due to the fact that such work enters mostly into labour market segments that are already flexible. As such, the role of digital apps is not necessarily seen as something novel in society, but rather as a simple mediation by technologies of an already existing situation (Kahancová, Meszmann, Sedláková, 2019 witness this in Slovakia and Hungary; Owczarek, 2018 observe the same phenomenon in Poland). Hence, it does not necessarily provoke an outcry, either in society or among tripartite partners.

Moreover, and as shown throughout the paper, there is great disparity between workers working via digital platforms online and offline. Online workers are rarely interested in being organized (at least not in structures as they exist today). This is particularly true of online workers who position themselves as genuine freelancers, and who indeed benefit from the advantages that platform work offers them. Those for whom this work represents their main activity often chose it to escape abusive employment relationships in local labour markets (Aleksynska, Bastrakova, Kharchenko, 2018). These online workers generally enjoy higher earnings and better working conditions than those available in local labour markets. As such, they are not unhappy with the development of digital work and do not seek its regulation.

At the same time, for the vast majority of workers in all countries reviewed, digital work represents only a secondary activity (Aleksynska, Bastrakova, Kharchenko, 2018; Pesole et al., 2018; Akgüç, et al., 2018; Kahancová, Meszmann, Sedláková, 2019; Owczarek, 2018). Thus, digital workers often rely on income security, social security provisions and other protection offered to them though their main job in the traditional sector. They do not seek labour protection in the digital labour market other than protection against non-pay, which are often remedied without involving trade unions with the help of the platforms.

For workers operating offline through mobile apps, there is generally low awareness of trade union activities, and of the fact that worker interests can be represented by anyone. This is particularly true of young workers who are heavily represented in some apps, but also of migrant workers, who either are unaware of their rights, or do not speak the local language, or are only interested in working temporarily (ESDE, 2018; Dudin, 2019). Trade union activities are also time-consuming. Some app workers mentioned in the interviews that they could not afford to spend time on such activities even if there were opportunities to do so (Akgüç, et al., 2018).

The lack of trade union response is somewhat mitigated, in certain countries, by guild-type and association-type entities. For example, in Hungary, there is an association of individual accommodation providers (MAKE- "Magyar ApartmanKiadók Egyesület" (Association of apartment rentiers). It serves mainly as a collective voice before local government. Some of its activities include providing information, training and awareness-raising for accommodation providers operating through online web-based platforms (Kahancová, Meszmann, Sedláková, 2019). In Slovakia, the civic association "Vitaj Doma" (Welcome Home) was founded by AirBnB service providers. Its main functions so far have consisted of providing a forum for information exchange, including about regulatory changes and tax requirements (Kahancová, Meszmann, Sedláková, 2019). Online forums and social media groups have also flourished to exchange information about various aspects of online work (eg., BeFree Facebook group for Ukrainian freelancers, with over 40,000 active users).

This situation may be changing, however, as platform work gets more widespread. Indeed, there is evidence that digital market maturity is instrumental to trade union response. In Poland, the phenomenon of digital work has not yet gained sufficient momentum, while other issues tend to dominate public debate and tripartite dialogue. They include harnessing the excessive flexibility of the labour market, regulation of the excessive use of civil contracts and improving working conditions for all workers, such as setting of an appropriate minimum wage (Sienkiewicz, 2019).

It is noteworthy that the business strategies and actions of certain platforms can provoke specific reactions on behalf of digital workers and trade unions. Some platforms are more aggressive and value-extracting than others. Their unilateral actions that substantially worsen working conditions can provoke collective response. For example, after Uber and Yandex.Taxi in Moscow raised their commission fees, drivers organized a three-day strike in 2015, and another in 2017. The protesters were not numerous, however, and their concerns were not heard (Radio Freedom, 2018). Since July 2018, Glovo couriers had organized three protests in Kyiv (Movchan, 2019) to protest against a particularly aggressive business model that clearly violated laws by engaging workers in a disguised employment relationship. The only reaction that they obtained from the app owners was to be banned from the Glovo app. In response, couriers set up a trade union of delivery service workers, supported by the Ukrainian Social Movement NGO. While this trade union has no specific rights in Ukrainian law to date, it remains one of the very few examples of conclusive worker organization in the digital economy. Their main immediate task is to prove that their relationship with Glovo should be considered officially as one of employment (Movchan, 2019).

Where unions have been unanimous throughout the region is in the personal transport sector. Entry of Uber and Uber-type applications (such as Car.Go in Serbia) into local markets provoked a general outcry from traditional market players. Most of the demands did not concern the working conditions of drivers but focused on protest against the unfair competition practices of those applications that allowed drivers to work without professional license, insurances and other professional obligations with which traditional professional workers in the sector must comply. Also, they fought against the unfair price setting practiced by some companies, such as reducing the price of transport services and providing subsidies to drivers in order to break into the market.

4.2 Regulation through labour law: determining the existence an employment relationship

The matter of worker status classification is at the heart of digital worker protection in all countries of the world (ILO, 2016) and as such also concerns workers in Eastern Europe, especially those who find themselves in various forms of dependency from a platform or an app. Appropriate classification of workers as employees rather than as self-employed can help acquire workers the rights to which they are entitled under labour laws in force. In turn, clear laws enabling the determination of the existence of an employment relationship, and their effective enforcement, can reduce the incentives for companies to take recourse to self-employment. They can also reduce incentives for the owners of digital labour platforms to build their business models around the possibility of relying on disguised employment relationships.

Some countries in the region do not have specific legal provisions for determining the existence of an employment relationship. Moreover, the topic seems to be quite sensitive. For example, when in 2018, the Ministry of Social Policy of Ukraine put forward a bill of law stipulating the conditions for determining the existence of an employment relationship – one that was solidly based on ILO Employment Relationship Recommendation No 198 – it created a large wave of protest from the very workers that it sought to protect. Many online workers saw this as a government attempt to "cut" platform work, and a threat to the flourishing IT sector where self-employment is omnipresent. But for other workers, such as those working through apps and more often in the grey zone of disguised employment, this made it difficult to bring claims to court (Dudin, 2019). The problem of worker reclassification in Ukraine is also exacerbated by the absence of specialized labour courts, and hence of experienced labour law practitioners and judges who would be able to mainstream the reclassification cases.

Other countries, such as Romania, were more successful in this regard. When the share of self-employed in the country reached over 40% in the mid 2010s, the country managed to adopt legal instruments establishing a series of criteria to determine the legal nature of the work relationship. Interestingly, the legal change was integrated into the Tax Code rather than the Labour Code. Also, instead of listing the criteria that determine an employment relationship, the new provisions instead listed the criteria for qualification

as a freelancer (at least four of seven conditions have to be met: Roşioru, 2019). In addition, in 2018, a law on teleworking was adopted, establishing explicit definitions and conditions for this activity. Significantly, this law, coupled with the reformed social security provisions, according to which social security contributions are paid only be employees, sets substantial incentives for certain platforms and clients to award their workers the legal status of an employee (Roşioru, 2019).

4.3 Regulation through labour law: new provisions specifically addressing digital work

Local app-based platforms mediating offline work and online web-based platforms often require different types of regulatory responses. Work performed through local app-based platforms is mostly local in nature. As such, it can be rather successfully regulated at the national level. The caveat, however, is in the enforcement of such regulation, which may be jeopardized by the foreign ownership and non-national location of the app managers. In turn, online work performed through digital labour platforms functions at national, regional and international levels. As such, it would benefit the most from regulation on these three levels. Yet, regional and international cooperation in the field of labour law regulation of online work has so far lagged behind the development of online work itself. More generally, as the phenomenon of digital work is still quite new, regulation of working conditions by means of labour laws have so far been rather disparate.

Of all the countries reviewed, the only specific attempts to regulate work through local app-based platforms, by means of labour law, was found in the Russian Federation. A law is currently being discussed in parliament (second reading: end of 2019) about working conditions in the transport sector. Among other issues, the law proposes to limit the working hours of taxi drivers (both traditional and those working through apps), including tracking whether they switch between different apps; monitoring their level of tiredness with special cameras installed in the vehicles; prohibiting employment of foreigners; and prohibiting driving without a license by imposing fines on the apps rather than on the drivers.

Regarding online platform work, similarly, as of 2019, only national attempts to regulate such work were found. Most such efforts are still at the negotiation and proposal stages at the time of writing. For example, in Poland, an attempt to address the issue of platform work under the Commission for the Codification of Labour Law has ended without any formal conclusion (Owczarek, 2018).

Perhaps the most (if not the only) advanced efforts to regulate online platform work by labour law is found in the Russian Federation. In 2013, the Labour Code was amended by Federal Law N.60-F31 to include Chapter 49.1 "On the distinctive features of remote work of employees" (Filatkina, 2015; Lioutov and Tsypkina, 2018). The new chapter aimed specifically at legalizing and regulating "on-distance", "remote" labour relationships that are mediated by digital technologies, and Internet in particular. Article 312.1 of the Labour Code defines its scope of application as pertaining uniquely to work performed outside of employers' premises and outside a standard workplace controllable by an employer, and for which ICT networks are used for communication between the employer and the employee for job execution. Remote employees are considered to be those who conclude a work contract for remote work, and should be normally covered by labour law, taking into account the particularities of their work. They are entitled to receive a salary, rather than civil contract-type compensations, have a right to paid leave and be considered as staff. The control over such employees is performed remotely, with electronically set milestones and deadlines and work has to be sent by the agreed dates and are considered as proofs of work performed (Filatkina, 2015; Lioutov and Tsypkina, 2018). Remote employees thus defined differ from home workers, who are also regulated by the Labour Code. Differentiation includes the workplace: for a home worker, the workplace is the employer's organization, while for a remote worker, the workplace is his or her own home, without territorial limits (Filatkina, 2015; Lioutov and Tsypkina, 2018). The list of works to be performed remotely, however, is not fixed by the legislator.

The new provisions also grant remote workers a number of exemptions from the general rules applicable to hiring and execution of employment contracts. For example, the parties are allowed to exchange documents in electronic form ("electronic documents") as long as they are authenticated with a so-called "reinforced qualified electronic digital signature", which in the Russian Federation are formal legal terms also defined by legislation. They are also allowed to abstain from maintaining "workbooks" – the official track record of a worker's life-long experience, which all employers and employees are obliged to keep. Finally, the law allows a remotely working employee to set his or her own work and rest regimes in a unilateral manner (Gerasimova, Korshunova, Chernyaeva, 2017).

Other particularities include provisions on confidentiality and information protection clauses that should be part of the employment contracts of remote employees. They should concern the company information accessed by the remote worker, but also that produced by the remote worker for the company. Thus, the law foresees that both remote worker and employer should abide by the rules of information safety. Personal computers of remote employees can be equipped with crypto-protection systems, preventing information sharing with third parties. In return, a remote worker can request the purchase or amortization of computer equipment necessary to execute work (Lioutov and Tsypkina, 2018).

The new regulation is seen as but a first step towards creating a regulatory field for online work. For example, the law did not set any specific incentives to convert existing contractual relationships on the online labor platforms and on mobile apps into the remote employment relationships (Aleksynska, Gerasimova, Lyutov, 2020). As a result, the vast majority of contractual online platform workers and workers of the mobile apps continue working outside of the scope of this legal provision, despite the fact that their relationships with online web-based platforms, or with online clients, often have all features of the remote employment relationship.

Moreover, for the new provisions to be effective and complete they have to be supplemented by a series of amendments, including a possibility to execute remote (telework) arrangement only on a part-time or temporary basis, otherwise combining it with regular work with the same employer; the "right to disconnect" (Lioutov, 2018); more explicit regulation of the working time of remote workers ; and a clearer set of criteria determining the existence of an employment relationship (Lioutov, 2019). The subordination criteria, necessary for establishing an employment relationship, should also be complemented by the economic dependency criteria, as well as by acknowledging the asymmetry in economic powers of both parties to the agreement (Lioutov, 2019). Some scholars also regret the abolition of "workbooks", suggesting that technologies allow "electronic workbooks" (Kurennoy, Kostyan, Khnykin, 2017), which may be a useful tool for proving online work experience and for claiming social security (particularly pension) rights.

4.4 Fair competition, tax compliance and other regulatory responses

In addition to the issue of employment status and working conditions, the emergence of digital work has given rise to concern regarding the legal status of workers and of the platforms through which they operate. The concern is that, under the pretext of being a "new" mode of work, these platforms and workers actually obtain a competitive advantage by avoiding various local regulations required to enter the market in a given segment. In addition, tax avoidance and under-reporting of income by workers operating via online web-based platforms of any sort are often an issue.

4.4.1 Regulatory measures related to local app-based platforms

The main challenge with local app-based platforms is that they often claim to be only a technology service. For example, this was the case of Uber and Uber-type applications, which refused to acknowledge that they are a transport company. As such, they claimed to fall out of the scope of current national legislation regarding the licensing and insuring of drivers and their vehicles. Thus, they refused to be bound by

the same legal obligations as other traditional market players in the sector, despite de facto providing the same personal transport service (Duncan et al., 2016). The concern is that in so doing, they practice unfair competition with respect to licensed services. Similar concerns are expressed with respect to platforms for short-term property rental. Such platforms made it possible for private individuals to compete with the professionals in the hotel industry, but without having to comply with all the safety and hygiene regulations applicable in the sector, hence undermining the business of the latter.

Another related issue concerns fiscal obligations and taxation, which could lead to unfair competition and also result in omnipresent tax evasion and income underreporting. In Hungary, official complaints were brought to court claiming that Uber Hungary Kft., a subsidiary of Uber International Holding B. V. (registered in the Netherlands), conducted their business without making requisite tax contributions (Duncan et al., 2016). Thus, several countries have reacted to the development of digital work first and foremost by considering what legal status such applications and platforms ought to have.

Regarding local app-based platforms, there have been regulatory responses at both national and regional levels. One key example of regional regulation is the EU-level European Court of Justice 2017 ruling (in Case C-434/15) on the status of applications that provide intermediation services in the field of passenger transport, such as Uber. According to the ruling, services provided by such applications must be regarded not as "an information society service" but as "a service in the field of transport".

This landmark ruling became important source of law for the EU-member states, including countries in Eastern Europe. It allowed them to extend the scope of the existing sectoral (transportation) laws to Uber-type applications. For example, Slovakia's court referred in its decision to this European Court of Justice 2017 Judgement, ruling that Uber should be viewed as a transportation company and hence comply with the existing laws on professional licensing of drivers and with the safety requirements applicable to the vehicles driven (Reuters, 2018). Hungary amended its transport law to bring Uber-type companies under the scope of current transport regulations. Such legal changes resulted in all drivers having to comply with professional licensing and insurance obligations. Some other non-EU countries in the region, such as Belarus and Serbia, adopted similar legal amendments.

Some countries adopted different national responses to the unfair competition claims against local app-based platforms (Table 5). The Baltic states responded to unfair competition complaints by placing everyone on equal – liberalized – ground, in exchange for more stringent obligations to declare activities and pay taxes.

In 2017, the Estonian parliament passed a law specifying the conditions for providing transport services mediated by digital electronic platforms and aligning their position with that of traditional taxi services (National Training Fund, 2017). Under this law, neither traditional taxi drivers nor drivers associated with new digital providers need to comply with previously required conditions for professional training. Rather, transport providers are now under obligation to ensure their own training provisions for their drivers. In addition, the Estonian tax and customs committee (EDCR) initiated a pilot project for the transport sector, in cooperation with Uber, to connect the digital payment system of the digital transport provider directly to the EDCR digital tax system. This has the compound effect of reducing undeclared payments and substantially decreasing the administrative burden for service providers (National Training Fund, 2017).

Similarly, Lithuania amended its Road Transport Code in 2016. The updated provisions allow passenger transport to be organized by both natural and legal persons in both taxi and ordinary passenger cars. In return, the passenger transport company must provide passenger data to road transport control authorities, declare the service to the municipal authority, and declare the income received from these activities to the State Tax Inspectorate. The Code no longer requires passenger transport operators to obtain a permit to carry passengers (Verslo Zinios, 2018; OECD, 2018b).

Latvia amended its Road Transport Law in 2017 (effective March 2018). The Act establishes equal licensing requirements for any personal transport-operating entity and, along with its accompanying secondary legislation provisions, also obliges "ridesharing" apps to accept only electronic payments and to register

in the Enterprises Register as legal entities providing full accounting of business activity. It also liberalized and simplified the process of obtaining licenses (OECD, 2018a).

In the case of property-rental apps, a range of national-level initiatives were also undertaken, similarly framed around issues of fair competition, taxation and bringing workers under the scope of existing regulations in the tourism and accommodation sectors. In contrast to regulations concerning Uber, however, some of these regulations may be implemented at city and district levels. Certain regulations were introduced in response to the price escalation of rented properties and subsequent depopulation, disturbing neighbours and causing pollution. For example, in Prague (Czech Republic), municipal authorities may fine private hosts for failing to register their rental activity with the local tax office. Beyond this tax regulation, municipal counselors are calling for a more global and comprehensive approach to regulating work via mobile apps. In 2018, they launched a petition urging authorities to address the unfair competition in the hospitality sector (Kafkadesk, 2018). If, in response to this, legal changes will be implemented to classify hosts of AirBnB and other similar platforms as accommodation services, the hosts will have to comply with the Trade Licensing Act. They will be under obligation to declare performance of a trade to the Trade License Office and charged an administrative fee. Failure to do so would constitute an infraction and the offender would be liable for a fine. Providers would also have to levy radio and television broadcasting fees. In addition, hosts would need to report to the foreign police department that a non-EU national has been provided with accommodation within three working days after the provision of accommodation, and to maintain a guest register. Failure to do so would constitute an administrative offence subject to a fine (Ecovis, 2019).

In Hungary, some municipalities of the central districts of Budapest amended their regulations in local towns. Pursuant to the amendment, unless the local bylaws explicitly allow the registered use of a given unit to be changed from "residential" to "temporary accommodation", such a change is not permitted. This is seen as an obstacle for private hosts, as in the absence of explicit authorization in the bylaws, they may not be able to start an Airbnb business. The Supreme Court of Hungary ruled that a condominium is indeed free to prohibit or restrict other uses of units to ensure uninterrupted residential use. To enforce compliance with the prohibition or restriction, the condominium may sue a private non-complying host (Schoenherr.eu, 2018).

4.4.2 Regulatory measures related to online work through digital labour platforms

Online work through digital labour platforms has raised a somewhat different set of issues. In addition to income under-reporting and tax non-compliance, related concerns include the possibility of money transfer from abroad and the administrative registration of "online freelancers".

As of 2019, no regional or international regulation seemed to have addressed these issues. On a national level, efforts to formalize the status of online freelancers by improving their tax compliance are found in Ukraine. In 2016, law No 4496 marked a first step towards decreasing administrative barriers for the "export of services" and somewhat simplified legal procedures for doing business with online entrepreneurs. As such, this law was initiated to legalize online freelance activity with foreign clients, which previously completely fell outside the scope of legal regulation (Ain.ua, 2017). Still, many freelancers struggle to understand cumbersome administrative rules and monetary regulations for being able to cash earnings for their work from abroad. More regulatory progress is expected for foreign currency regulation, to allow for money transfer through intermediaries (and online web-based platforms are often seen as such), and to abolish the obligation to immediately convert foreign currency into the local currency in the case of direct transfers from clients abroad. These regulations are expected to reduce the practice of transferring earnings from online web-based platforms to foreign, rather than Ukrainian banks and their subsequent cashing abroad.

▶ 5 In lieu of a conclusion: the future of digital work and the challenges of its regulation

The literature reviewed in this paper suggests that the digital transformation of the world of work is only just beginning, and technology-enabled online web-based platforms and apps have mushroomed in a number of traditional sectors. These platforms have adopted business models, which sometimes operate outside the scope of existing regulations and often require innovative regulatory responses. Regulatory responses vary across Eastern Europe: most introduced to date have been mainly at the national level, and have concerned primarily work through local app-based platforms.

Digital work through new technologies calls for ingenuity from the regulator and the starting point is understanding the differences in the way work is performed using digital technologies and in the traditional way. What are the challenges to work using digital technologies? Whether some of the challenges are new, or are in fact old challenges which were also part of the traditional labour market? Can current regulation be applied to the new challenges of work using digital technologies? What new regulation is most appropriate to resolving some of these new challenges?

But even when these questions are answered satisfactorily, the main challenge lies with enforcement. Labour inspectorates and tax authorities may not necessarily have the legal mandate, or the means, to ensure necessary and timely control(s). Currently where issues arise with digital work, the legal responsibility for providing proof is often with the worker rather than with the app or the platform. Such general problems are compounded by several specificities particular to regulating digital work.

First, in cases of enforcing tax compliance, regulation, privacy laws and the fact that some app headquarters are located abroad could be an obstacle. In fact, platforms rarely publicly reveal detailed information about their users, such as the exact number of their workers, their exact earnings and the nature of activity (whether systematic or ad-hoc). Countries requiring this information to enforce tax compliance have to request such details from the platforms on a case-by-case basis. For example, in Slovenia, by 2017, it was recognized that the Airbnb networked business had all the characteristics of a hospitality business which had been regulated by a dozen legal acts in the country (Zupan Korze, 2018). It was thus decided that "the problem is not in regulation, but in strict implementation of the regulation" (Zupan Korze, 2018). Hence, it was up to the tax authority and inspectors to better supervise Airbnb short-term home rentals in Slovenia and individuals operating through Airbnb to ensure respect of the relevant regulation and pay taxes on their activity in the tourism and hospitality sector. This position was officialized by the Ministry of Tourism in 2017. Moreover, the Ministry of Finance requested and received data from Airbnb headquarters about Airbnb hosts in Slovenia and information on their earnings. It called on the hosts on the Airbnb and other accommodation platforms to self-declare their tax obligation and to follow other rules regarding short-term rental activity, at the risk of being fined for non-compliance (Zupan Korze, 2018). Such cooperation between platforms and government authorities is not yet common or systematic. For example, Uber and Yandex.Taxi tend to refuse such collaboration, claiming that disclosure of individual data may be contrary to individual data-protection regulations.

Second, on online web-based platforms, workers or clients may hide behind a virtual identity or a digital persona, masking authentic identity (even though an IP address may be identified, and even if a real name may be requested in order to cash earnings); an algorithm may be used to assign a nickname to a user. This means that identifying a non-complying individual may involve recourse to different types of law, coordination of different agencies and possibly violation of the privacy data of the individual in question as well as others (Talapina, 2018).

Third, some app owners operate outside of the scope of the existing regulations, under the pretext of having a new business model that offers "modernity", "progress", and employment creation (Meszmann 2018a). For instance, in Slovakia, even before the court ruling on Uber practicing unfair competition, Uber drivers technically fell under the scope of personal transport regulation. However, they did not comply with the requirements to visibly mark "Taxi" on their vehicles, whereas the police had a mandate to control cars only so marked (Meszmann 2018a; Sedláková 2018). When the Slovak Trade Inspection stepped in to control Uber vehicles in 2016, Uber blocked their access to the system after several controls. It was in response to these actions that traditional taxi drivers filed a lawsuit claiming unfair competition by Uber. In March 2018, Bratislava District Court I ruled in favour of the claimants and Uber was obliged to suspend its services. Nevertheless, Uber remained in the local market and joined the National Union of Employers, technically becoming one of the stakeholders in the national social dialogue (Meszmann 2018a; Sedláková 2018).

Another challenge to law enforcement is that different modes of digital work are proliferating exponentially. One example includes work through "closed" online web-based platforms, in which online work is dispatched to a restricted circle of users who joined the platform by invitation from the platform owners (Aleksynska, Bastrakova, Kharchenko, 2018). Another example is online intermediation chains. They emerge when a worker accepts a task only to outsource it (repost) further. Work may be dispatched either to a team of workers located in the same country and managed by the first worker, or it may be simply reposted on another platform and picked up by workers located in another country. This complicates regulation, as the roles of individual users in the process quickly become blurred or confused. In countries adopting regulations that lack compliance incentives, the risk is that platforms, clients, and workers will find creative ways of avoiding them. Workers and clients may switch to direct contacts, exchange work tasks by email or through social networks rather than via platforms, or switch to using encrypted platforms, making law enforcement impossible altogether.

These challenges mean that national regulators have to be increasingly vigilant, inventive and reactive in their policy responses. Policy tools need to have a strong self-enforcing component, and increasingly, there is a need for coordinated policy responses across different ministries and agencies. The paper has sought to demonstrate the increasing need for policy dialogue and concrete policy measures at the regional and international levels.

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Acknowledgements

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The International Labour Organization is the United Nations agency for the world of work. We bring together governments, employers and workers to improve the working lives of all people, driving a human-centred approach to the future of work through employment creation, rights at work, social protection and social dialogue.
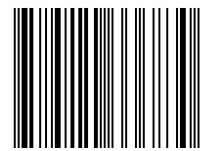
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