

WEB LABOUR MARKET OF SERBIA

Landscaping and overview

Disclaimer

This report was prepared for ETF by Mihail Arandarenko and Francesco Trentini. Reviewed by Laura Veza-Visan (ETF)

The contents of the report are the sole responsibility of the ETF and do not necessarily reflect the views of the EU institutions.

© European Training Foundation, 2026

Reproduction is authorised, provided the source is acknowledged.

CONTENTS

CONTENTS	3
-----------------	----------

INTRODUCTION	4
Landscaping methodology overview	5

REVIEW OF LABOUR MARKET DYNAMICS	7
Population characteristics	7
Labour supply characteristics	7
Key sectors of employment	10

GENERAL AND EMPLOYMENT-RELATED USE OF THE WEB IN SERBIA	13
General use of the web	13
Employment-related use of the web	13

IDENTIFYING THE JOB VACANCY SOURCES AND THEIR CHARACTERISTICS	15
List of job vacancy sources identified	15

RANKING MODEL	19
Source evaluation	19
Source Selection	20

CONCLUSIONS	22
--------------------	-----------

ACRONYMS	23
-----------------	-----------

REFERENCES	24
-------------------	-----------

Introduction

Governments and socioeconomic partners in most ETF partner countries are unanimous on the need to develop and better use information on the labour market and skills dynamics to improve the performance of education and training, the availability of qualifications and skills for employment, and lifelong societal and personal development of individuals. Today, this implies innovation to improve labour market intelligence (LMI). In this context, most partner countries have been reinforcing their systems, capacities, and methods to identify, analyse and anticipate demand and skills needs in a context of changing economic structures, new types of work, and rapid digital transformation of occupations and tasks.

While conventional LMI, based on regular statistics, specific-purpose surveys and qualitative methods, has gained ground in ETF partner countries, there is much room to further innovate on data sources, improve analytical capacities and modernise the formats and instruments available to visualise and disseminate insights for users (policymakers, socioeconomic partners, and education and training players). Big Data analytics offers new opportunities to improve LMI and deliver real-time and fine-grained skills analysis and insights for users. Big Data is all around us. Big Data is characterised by volume, variety, velocity and - eventually - value. Machine learning and artificial intelligence (AI) algorithms, combined with vast computing power, anytime and anywhere, allow data science to exploit certain Big Data sources that have great potential to supplement and enrich conventional LMI; this is the case with online job vacancies (OJVs) managed by a large variety of online portals and boards.

ETF partner countries have seen a growing use of digital tools and online portals - public and private - for posting and managing job vacancies. In this context, in 2018 the ETF started an initiative aimed at exploring the potential for the application of Big Data analytics for LMI in ETF partner countries, focused on data from job vacancies announced online. **Phase 1 (June 2018 - 2019)** focused on developing a methodological framework and disseminating it among data analysts, national statistical offices and labour market institutions. A key output of this phase was a short handbook published in June 2019, *Big Data for labour market intelligence - an introductory guide* (Mezzanzanica and Mercurio, 2019). Two training workshops were conducted in 2019 to present and discuss the methodology. The thematic materials of the in-depth training workshop of November 2019 are available online¹. The introductory guide is aimed at statisticians, researchers, policy analysts and decision makers in the ETF partner countries who are confronted with the challenges of anticipation and dissemination of insights on the dynamics of demand for jobs, skills and qualifications. This short handbook addresses key conceptual, methodological and organisational aspects of using Big Data for LMI. It clarifies how Big Data can be used to go beyond the frontiers of conventional approaches to LMI systems and add value to established statistics. **Phase 2** was dedicated to starting the practical application of the knowledge discovery in databases (KDD) approach defined in the above-mentioned short handbook. The first step of the approach was tested in two countries (Tunisia and Morocco), with a feasibility study focused on the identification, analysis and ranking of web job vacancy sources (Mercurio and Mezzanzanica, 2019). This analysis covered 16 OJV websites in Tunisia and 15 in Morocco. Based on the results of this feasibility analysis, the ETF decided to continue the analysis of OJVs in Tunisia (2019 - 2020) and to add Ukraine (2020) to the project. Each internet source was evaluated and ranked in terms of the reliability of the information. This analysis considered the vacancy publication date, the websites' update frequency, the presence of structured data, and any downloading restrictions. The outcome of step 1 is the ranking of reliable web sources. **Phase 3**, in 2020, was applying the approach in two countries (Tunisia and Ukraine). **Phase 4**, in 2021, was the extension to a new country (Georgia) and the beginning of exploring new dimensions (Green

¹ <https://www.etf.europa.eu/en/news-and-events/events/big-data-labour-market-information-focus-data-online-job-vacancies-training>

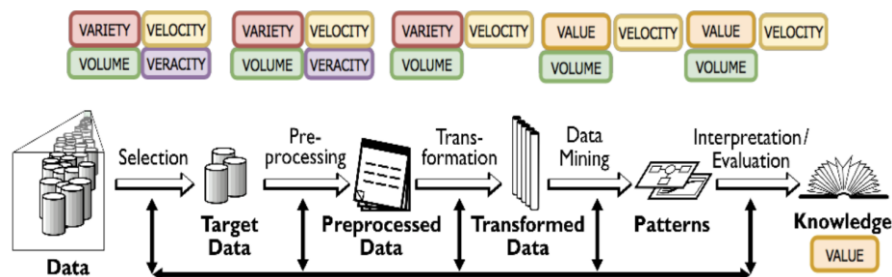
dashboards). **Phase 5**, which started in July 2022, is the application of the approach within an evolved methodology in Egypt and Kenya, and the exploration of new dimensions (Remote working).

This report is, therefore, part of the last phase of the ETF Big Data for labour market intelligence project. The report provides an overview of key characteristics of the web labour market in Serbia and contextualises the forthcoming analysis of online job vacancies.

Landscaping methodology overview

Any analysis that uses Big Data must face several challenges due to the peculiar characteristics of these data sources. Their distinctive features are the variety of data types, the velocity of their production due to the high frequency at which they become available, the large volume of data available for analysis and the need to clearly outline the phenomena that are observed and the risks of manipulation or bias the sources can be subject to, i.e., veracity.

Figure 1 Steps in the knowledge discovery in databases (KDD) approach



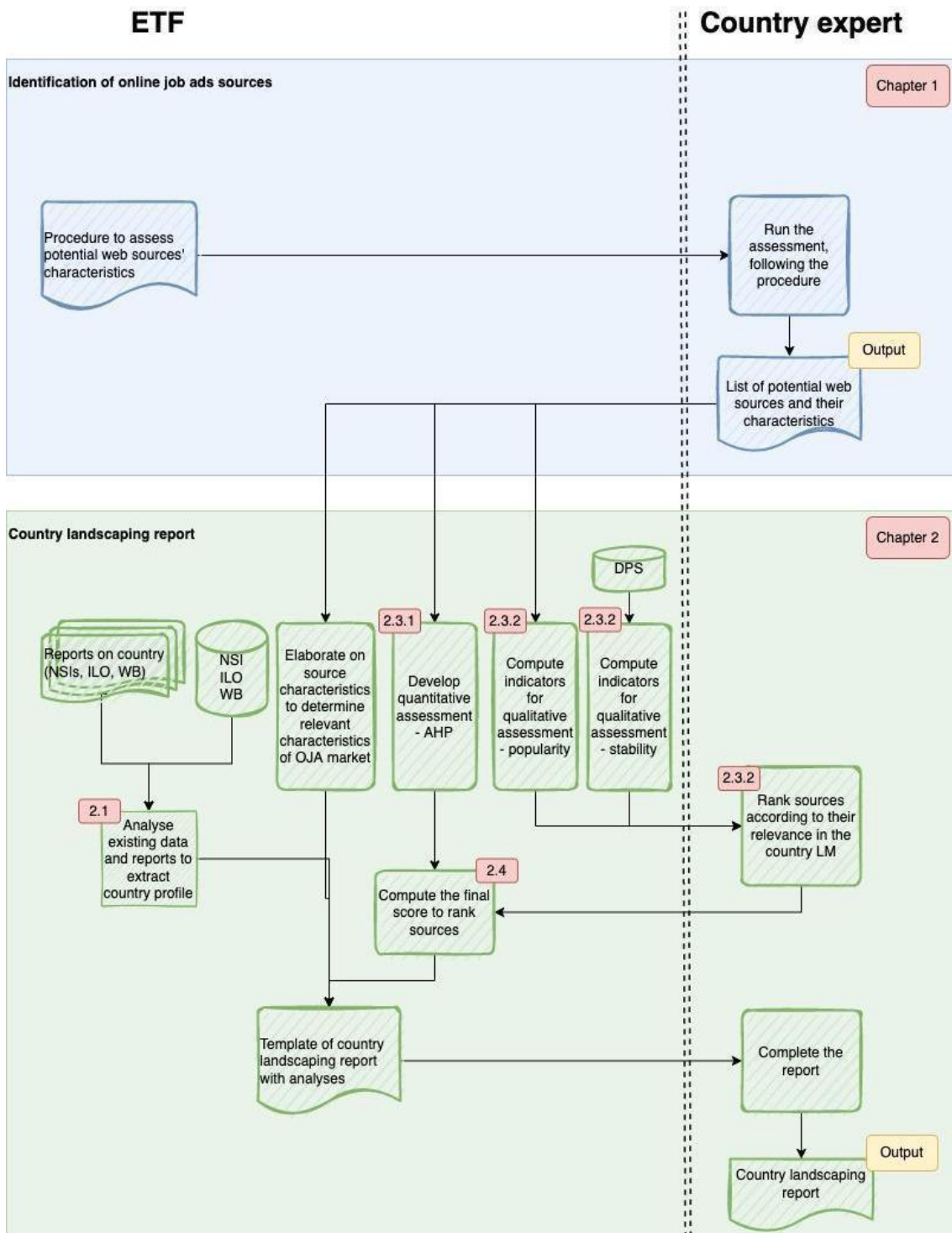
The landscaping activity aims to collect information on available websites which publish online job vacancies and analyse some fundamental indicators to evaluate their quality. A detailed account of each step and how it is conducted is described in the *Online job ad landscaping. Methodological guide* (*Methodological Guide* hereon). We present a workflow diagram in Figure 2 while referencing to the *Methodological Guide* for a description of each activity.

As presented in Figure 2, a source selection phase is needed to identify available data sources and check their availability. Moreover, a by-product of this activity is to eventually identify sources with whom to negotiate data access agreements in case of need².

Each source is surveyed to analyse websites and online job ads page characteristics. The survey of potential sources of online job vacancies led to the identification of 19 online sources obtained through the landscaping wave of May 2026.

Figure 1 Workflow of the production of the country landscaping report. Red labels refer to the chapter of the methodological guide that deals with the topic

² Potential new sources that emerge from the internet search may be websites established in the time lag between the two landscaping activities, albeit it is not necessarily the case. Such websites may have been online during the previous landscaping and not be surveyed because they are very low in the Google ranking using the given keywords. This would indeed be a hint to their low relevance in the online job ads market in the past — given the keywords used and the search engine technology — and an increase in relevance in more recent times.



Note: Data Production System (DPS), National Statistical Institute (NSI), International Labour Organisation (ILO), World Bank (WB)

Review of labour market dynamics

Population characteristics

Serbia faces interlinked trends of depopulation and ageing that jointly diminish potential labour force. The population decline is very pronounced. Between 2011 and 2022, the last two census years, the population was reduced from 7.19 million to 6.65 million, or on average by some 50 thousand people annually. The most significant reason for this trend is natural decline (fewer births than deaths). Some three quarters of the observed reduction in population between the last two censuses can be attributed to the natural decline, while the remaining one quarter can be attributed to the negative migration balance. However, trends in migration and natural decline are also interlinked and they reinforce one another.

Serbia's total fertility rate (TFR) has been below replacement for over six decades, which is among the longest periods anywhere in Europe. The drop in TFR below replacement roughly coincides with the start of the post-war wave of temporary labour migration to Western Europe. In recent years, the TFR has somewhat recovered and stabilized at slightly above 1.60, possibly because of more generous financial measures supporting births since 2018. Although the TFR is currently among the highest in Europe, it remains well below replacement and is not high enough to prevent further steep population decline.

In the last intercensus period, the median age increased by 1.6 years, from 42.2 years in 2011 to 43.8 years in 2022. In the first decade of 21st century life expectancy increased from around 72 to around 74 years. It grew somewhat slower since, adding approximately 2.5 more years in the 15-year period between 2011 and 2025. It recorded a sharp temporary drop in 2020-21 because of the COVID-19 pandemic, but recovered afterwards, reaching a high of roughly 76.8 years in 2025.

As is typical for a country experiencing a prolonged period of demographic decline, Serbia has a population structure in the form of an inverted pyramid. According to the data for 2023-24, residents aged 65 and over (approx. 22.3%–22.6% of the total population) heavily outnumber those under 15 (approx. 14.3%–14.4%). This indicates a deep demographic imbalance, with the elderly population now exceeding the young by over 8 percentage points.

The UN-DESA and World Bank statistics³ estimate the total Serbian migrant population in 2024 at around 950,000 persons, which represents some 14% of the resident population. While this percentage is some 3.5 times higher than the world average, it is relatively moderate in comparison with some regional peers, such as Bosnia and Herzegovina, Albania and Kosovo, which all have corresponding rates above 30%.

A couple of relatively recent analyses have dismantled a long held view that migration from Serbia has the defining characteristics of a brain drain (presented in e.g. Radonjić and Bobić, 2021). On the contrary, using two different methodological approaches, the findings of Leitner (2021) and Arandarenko (2022) agreed that the educational attainment of Serbian residents is somewhat higher than that of Serbian emigrants. The skill and occupational structure of Serbian emigrants shapes, to a significant degree, the skill and occupational supply and impacts the labour shortages across skill groups in Serbia.

Labour supply characteristics

In recent decades, labour supply in Serbia has been dominantly shaped by the sharp decline in the population of working age (15-64), largely driven by the replacement of older, much more numerous

³ https://www.migrationdataportal.org/international-data?i=stock_abs_&t=2024

baby-boom age cohorts, by significantly smaller millennial and Gen Z cohorts. According to the 2002 population census, there were well over 5.1 million persons of working age, comprising 67.6% of the total population. By 2011, the number was reduced to slightly above 4.9 million (68.3% of the total population), and by the last census in 2022, the working age population shrunk to 4.23 million (63.6% of the total population). In 2025, it can be estimated at 4.13 million (63.0 percent of the population), or a full million less than in 2002 (Arandarenko, 2026). It is interesting to note that the demographic tailwinds in the period 2002-2011 (in the form of a small demographic dividend due to an increase in the share of working-age in the total population) were accompanied by the extreme deterioration in labour market conditions, and conversely, that the demographic headwinds after 2011 in the form of a sharp increase in the total dependency ratio from 46.3 in 2011 to 57.3 in 2022, were accompanied by the stark improvement in labour market indicators. Clearly, these developments were due to non-demographic causes, such as the difficult transition to a market economy in the early 2000s combined with the impact of the global economic crisis in the period 2008-2012.

Table 1 Selected labour market indicators, Serbia, 2014-2025

Indicator	2014	2015	2016	2019	2020	2021	2022	2023	2024	2025
Activity rate, 15+	51.9	51.6	53.3	54.6	54	53.8	54.7	55.4	56.2	56
Employment rate, 15+	42	42.5	45.2	49	49.1	47.8	49.5	50.2	51.4	51.2
Unemployment rate, 15+	19.2	17.7	15.3	10.4	9	11.1	9.5	9.4	8.6	8.7
Informal employment rate, 15+	21.2	20.4	22	18.2	16.4	13	13	12.5	12	11.4
Mean weekly hours	42.3	42.6	42.5	42.3	42.3	42.8	42.9	42.9	41.3	40.9
Nominal wages in EUR	524	506	516	643	706	772	880	1011	1156	1447

Table source: SORS and Eurostat

While the period 2008-2014 was characterized by a dramatic deterioration in labour force indicators, in the period 2014-2025 labour market experienced a strong recovery, with all key indicators improving steadily. Even in the pandemic period 2020-2021, the labour market remained rather resilient. By 2024, the employment rate for the population 20-64 surpassed 70%.

Relatively low activity and employment rates for the entire adult population are a consequence of the high share of elderly adults (65 and over) whose participation in the labour force is naturally much lower. It is highly illustrative of Serbia's sharp demographic decline, especially within the population of working age, to note that the employment number peaked already in 2019, reaching 2.93 million, which was more than 2.87 million recorded in 2025 or 2.92 million recorded in 2024. While there were some 60,000 less workers in 2025 than in 2019, the employment rate was 2.2 percentage points higher in 2025 compared with 2019. In this most recent period of stagnant or slightly decreasing total employment, the improvements in the employment rate have been accompanied by improvements in the quality of employment, as will be explained in the next sub-section.

The unemployment rate more than halved between 2014 and 2020 and has remained in the single-digit territory ever since, standing at 8.7% in 2025 (LFS, SORS). Although the rate is still above the EU average of 6.0% in 2025, the stock of unemployed consists largely of long-term, hard-to-employ low-skill workers, often with borderline readiness and ability to work.

In the last intercensus period, the education structure of the Serbian working-age population has significantly improved, thanks to the combined effect of the exit of less-educated older cohorts and entry of much better educated youth cohorts. In 2011, among the working age population aged 25-64, there were still 20% more people with low education (ISCED 0-2) than those with high education (ISCED 5 and more) – the share of low-skilled in 25-64 population was 24%, and the share of high-skilled 20%. Within eleven years, the share of high-skilled went up to 27.8%, while the share of low-skilled went down to only 14.4% (Nikitović, 2025).

During the same period, this trend is even more pronounced among younger cohorts. The share of high-skilled in the age group 25-34, typically most prone to emigration (alongside with the 35-44 olds), went up by almost 50%, from 25.1% to 37.0%, while the share of low-skilled in the same group almost halved (see Table 2). In absolute numbers, despite the 2022 age group 25-34 having over 200,000 persons less than in 2011, the number of high-skilled increased by more than 40,000, while the number of low-skilled more than halved (from 138,000 to 64,500), and the number of medium-skilled was reduced by more than 170,000.

Table 2 Educational structure of Serbian population by age groups, Censuses 2011 and 2022, percentages

	Census 2011			Census 2022		
	Low	Medium	High	Low	Medium	High
15-64	27.1%	55.7%	17.2%	18.3%	57.5%	24.2%
25-64	24.0%	56.1%	19.9%	14.4%	57.8%	27.8%
15+	34.6%	49.1%	16.3%	24.2%	53.3%	22.5%
25+	33.4%	48.4%	18.2%	22.2%	52.9%	24.9%

Table source: SORS

Turning to the gender perspective, aggregate labour force indicators, most notably employment and activity rates, are significantly better for men than for women. Women in Serbia have a significantly lower employment rate than men. According to the Labour Force Survey (LFS), the gender employment gap in Serbia has been improving in recent years but is still above the EU27 average (11.7 percentage points in 2024 and 14 points in 2022 compared to EU27 10 percentage points, in 2024 or 10.7 points in 2022). The narrowing of the gap can be ascribed to a better overall labour market situation and gradual increase in the statutory retirement age for women. It is interesting that while part-time work makes up almost one third of women's employment in the EU-27 on average, in Serbia this share is only 7%.

The most recent available data on unadjusted gender wage gap show that the hourly wage gap is stable and is hovering slightly below 9% in recent years, which is still better than the EU average. Recent research (Krstić at al. 2025) has shown that the monthly wage gap is somewhat higher, reflecting longer working hours for men. However, this is a raw, unadjusted gap. The average pure endowment effect reveals superior pay determining characteristics of women compared to men, which increases the male wage premium to 15%, if the same wage determining characteristics are taken into account. The adjusted gap has increased since the 2010s, reflecting faster improvement in female characteristics, including education attainment. This research also found a stronger 'glass-ceiling' than 'sticky-floor' effect.

Migration flows play an important role in shaping the size and structure of effective labour supply in the country. While the net migration balance was negative but moderate until 2022, with some 10,000 more emigrants than immigrants and returnees (Arandarenko, 2022; Nikitović, 2025), the loss of workforce available in Serbia due to emigration was certainly significantly larger. While the majority of the emigrant population is below 45 years of age, among returnees there is a significant segment of those above 60. Effective labour supply in the country is further affected by the increase in work-

related seasonal and circular migration since the 2010s. Persons engaged in such migrations often are not active participants in the Serbian labour market, even if they spend a part of their time in Serbia (Arandarenko, 2026).

Another relatively novel phenomenon further eroding effective labour supply in the country is remote work on the global labour market - being it freelancing work on online platforms for foreign customers, salaried remote work for foreign employers, or any other similar 'telemigration' (cf. Baldwin, 2019) arrangement. Serbia has been for years one of the world's primary suppliers of freelancing telemigrants on internet-based platforms (Andjelkovic et al. 2021). This 'silent revolution' was initially revealed in a World Bank report (Kuek et al. 2015) which ranked Serbia as one of the leading countries both globally and in Europe by the percentage of digital workforce in relation to the country's total workforce (2.6%). In 2018, the Online Labour Index of the Oxford Internet Institute placed Serbia eleventh in the world and fourth in Europe based on the size of its active digital workforce, while AnalyticsHelp (2018) listed Serbia as eleventh based on the proportion of its digital workers per capita (3.5%).

Andjelković et al. (2021) found that Serbian digital workers provide services in the fields of software and technology development (30%), writing and translation (29%) or in the creative and multimedia industries (22%). A significantly lower percentage of digital workers from Serbia are engaged in sales and marketing (3%), clerical and data entry (6%), and in professional services (10%). Most digital workers come from urban centres. Young and highly educated people make up the majority of telemigrants in Serbia, and there is a good gender balance overall. In most cases digital workers have university degrees, with professional orientation in economics, design, marketing, architecture, philology, engineering. More than two-thirds of all Serbian digital workers (75.8%) have at least tertiary education or above, while 24.2% of them have a secondary school (Andjelkovic et al. 2021).

However, after the end of Covid-19, the freelancing platform work has diminished. The latest edition of Gigmeter⁴ claims that Serbian gig digital workers are abandoning platform work. Between April and October 2025, 13% of freelancers left Upwork as the most popular online work platform in Serbia. Incomes were also somewhat declining, reflecting the shift toward lower-complexity occupations and tasks.

In 2022, the net migration balance became temporarily positive⁵ primarily because of the influx of Russian citizens after the start of the war with Ukraine. However, the Russian immigrants are not as consequential for the Serbian labour market as their stock number at the end of 2024 of over 50,000 (SORS, 2025) would suggest, since the majority of them are not, other than in terms of location, directly tied to the Serbian labour market. Rather, Russian firms and citizens primarily relocate to Serbia as a hub for their international operations and remote jobs. Nevertheless, there are a growing number of Russian entrepreneurs entering the Serbian personal services and hospitality markets, even if they often primarily serve the needs of their Russian compatriots.

Independently of this specific case of Russian immigration, the number of work immigrants into Serbia has been steadily increasing in recent years, albeit it started from a very low base. The driving forces behind this trend have been, on the demand side, increasing labour shortages in Serbia, and on the side of the supply of foreign workers, Serbia's rapidly increasing nominal euro wages (Arandarenko, 2026). Between 2016 and 2025, the number of work permits issued to foreign citizens increased tenfold, from around 6,000 to over 60,000 (SORS, 2025). As for the stock of all foreign citizens, at the end of 2024 there were 101,413 foreign citizens with residence permits of one year and longer. Among them, around 53,000 were Russians, 12,000 Chinese, 4,500 Indians, 4,000 Turks, 2,000 North Macedonians, 1,500 Ukrainians etc (SORS, 2025).

Key sectors of employment

⁴ <https://gigmetar.repeople.rs/en/serbia-2025-2/>

⁵ <https://data.worldbank.org/indicator/SM.POP.NETM?locations=RS>

Among the three broad economic sectors - services, industry (with construction) and agriculture, the share of service employment in the total employment has been above 50% for over two decades. The share of employment in industry with construction has been above 25%. Finally, the share of agricultural employment has been on a secular decline since the early 2000s. Still, Serbia's share of agricultural employment remains very high from a European-wide perspective. According to LFS, among all employed persons, in 2024 there were 12.3% working in agriculture (Eurostat's estimate is 12.8%). However, among the population 15-64%, there were only 9.9% agricultural workers, with over 100,000 agricultural workers aged 65 and more. This suggests strong potential for further rapid reduction in the size and share of agricultural employment.

The two remaining broad sectors, services and industry (with construction), have a relatively stable share in total employment, with services having approximately twice as many workers as industry with construction. In recent years, employment in industry and construction grew somewhat faster than in services (see Table 3).

Table 3 Key sectors of employment, share of employees in total employment

Table Heading	2013	2021	2022	2023	2024
Agriculture, forestry and fisheries (%)	21.3	14.2	13.9	13.1	12.8
Industry (%)	21.1	23.6	23.8	23.5	23.0
Construction (%)	4.7	6.0	5.9	5.9	6.0
Services (%)	52.8	56.2	56.4	57.4	58.2

Source: Eurostat, based on LFS

There is a large difference between the total employment according to LFS and according to registration data. According to most recent data from 2025, the LFS employment comprises around 2.87 million, while registered employment comprises around 2.37 million persons. Without going into technical discussion, it could be said, in a rather simplified manner, that this half-a-million difference stems mostly from the fact that LFS data cover informal employment (mostly agricultural employment of small farmers), while registered employment data do not. The remaining less than 200,000 informal workers are rather sparsely spread across services and industry, with higher frequency in hospitality and construction.

The sectoral structure of employment outside agriculture can be characterized as well balanced and diversified. Within the services sector, ICT has shown the most dynamic growth over time in terms of employment, reaching 116,000 in 2025. Wholesale and Retail employ around 360,000 workers while Transport and Logistics is at the 130,000 mark. Hospitality is slightly below 100,000. Manufacturing hovers slightly below 500,000, while Construction employs some 130,000 workers (SORS data on registered employment, 2025).

The public sector used to be oversized in the 2000s, comprising around 2010 well over 30% total registered employment and commanding ample wage premium (Vladislavljević, 2020). Both aspects are gone by now, with the share of public sector employment in total registered employment of some 26%, and with the public sector having somewhat lower salaries than the private sector after controlling for education. Out of the total of 611,000 workers employed in the public sector, there are 81,500 working in state enterprises, 59,000 in local enterprises, 133,000 employed by state government or autonomous provinces, 27,000 in local administration, 164,000 in health and social work, and 147,000 in education and culture.

Finally, within registered employed, around 80% are wage or salaried employees in incorporated companies or public sector, while the remaining 20% comprises self-employed and their employees (18% of the total) and registered farmers (2%). Recent dynamics of this structure has been rather stable, reflecting trends in total LFS employment (see Table 4).

Table 4 Registered employment, by type, 2022-2025

Table Heading	2013	2021	2022	2023
Registered employment - total	2.310.035	2.360.588	2.368.948	2.364.301
Wage/salaried employees	1.856.415	1.894.051	1.900.430	1.893.541
Self-employed and their employees	397.058	412.904	419.106	425.106
Registered farmers	56.562	53.633	49.412	45.654

Source: SORS

General and employment-related use of the web in Serbia

General use of the web

Digital literacy in Serbia has increased in the inter-census period, that is, between 2011 and 2022. According to the results of the 2022 Census, 46.73% of residents aged 15 and over can be considered computer literate (they can perform three basic activities on a computer, tablet, mobile phone), which is a jump compared to the 2011 Census when the percentage was 34.21%. About 30% of residents only partially know how to work on a computer, while 24% are considered computer illiterate because they cannot perform any of the listed activities. According to SORS, in 2024, 88.8% of households had a broadband internet connection (85.6% in 2023, 83.2% in 2022), 95.9% of households had a mobile phone (94.4% in 2023, 95.0% in 2022), and 53.9% had a laptop (55% in 2023, 56.1% in 2022).

According to a recent RCC report (RCC, 2024) Serbia is outperforming Western Balkan averages in all digital skills indicators. In 2023, the share of ICT specialists in Serbia stood at 4.3%, which was well above the WB6 average of 3%. Serbia even outperformed the EU average in terms of the share of ICT graduates. Serbia's Strategy for Development of Information Society and Information Security 2021-2026 focuses on improving citizens' digital knowledge, enhancing the capacity of public and private sector employees to adopt new technologies, and upgrading digital infrastructure in educational institutions.

According to the latest global report by the World Bank (World Bank, 2025), Serbia has ranked second in Europe and sixth worldwide in terms of progress in digital transformation, following South Korea, Saudi Arabia, Estonia, Brazil, and Australia. With a composite Digital Government Maturity Index score of 0.977, Serbia advanced five positions on the global ranking compared to 2022.

Digital literacy and the use of the internet are still very unevenly distributed across generational groups. In an empirical research, Voza and Fedajev (2023) found entirely different patterns of digital engagement among different age groups. The adolescents and people in their 20s and early 30's use the Internet the most, and for the most diverse purposes, such as entertainment, information gathering, socialization, online shopping etc. Middle-aged persons (late 30s to early 50s) are generally less active on the Internet. Their use of the Internet is less entertainment related, and more practical and business-oriented such as for product research, online banking and similar. Also, they start using e-health more frequently. Finally, older adults (late 50s plus) are the least likely to adopt the Internet when compared to other age groups. Older adults use the Internet almost exclusively to read newspapers or magazines and especially to gather health information and advice. More advanced older users also arrange doctor appointments and access their own medical records online.

Employment-related use of the web

As of 2026, and already for a long time, the internet is the primary medium for recruitment and job seeking in Serbia. This trend has been heavily driven by the digitization of the labour market and the need to connect with an increasingly digital workforce. Over 95% of young job seekers actively use the internet for job search, aligning with international trends. The landscape is characterized by specialized job platforms, with Infostud Poslovi as a clear market leader for general job ads, increasing importance of LinkedIn for professional roles, and the rising influence of artificial intelligence (AI) in applicant screening.

On the side of employers, public sector employers are obliged to publish their job ads on the National Employment Service (NES) portal Poslovi (Articles 10 and 93 of the Law on Employment and

Insurance against Unemployment), including its weekly paper publication, and in addition they might use their own website and other sources, including private portals. Corporate private sector employers as well as self-proprietors (entrepreneurs in Serbian legal jargon) do not have an obligation to use the NES portal, so in principle they can fill vacant positions as they please. Private companies in most cases publish paid ads on one or more job portals, and rarely use the free services of NES. Services of NES are sought after if they are a precondition for employer job subsidies, or sometimes if a firm opens a relatively large number of new, typically blue-collar positions.

Private job portals, mostly locally established (except LinkedIn), dominate Serbia's online job market, typically charging employers while offering free services to job seekers. Online job portals cater to the needs of their corporate clients in various ways, from only redirecting applications, to collecting, processing them and communicating with job applicants before their applications are turned over to employers.

Micro firms and self-proprietors more frequently use kinship ties, personal connections, word-of-mouth recommendations and other more traditional ways of hiring workers. This is also a common practice in filling informal vacancies, such as in activities of housekeeping, home care, food and beverage, construction and other. Informal jobs are also more frequently advertised online using alternative channels, such as various social networks, community groups etc.

Similarly, the market for gig offline jobs has gone almost completely online. Examples include temporary jobs for students and young people, which are either advertised directly on websites of student or youth job cooperatives ('studentske/omladinske zadruge') or on specialized portals for this type of youth jobs. On the other hand, traditional physical venues where the manual workers waited to be picked for odd daily jobs (sometimes called 'slave markets'; the most famous example is a park around the Vuk monument in central Belgrade) - have all but died out.

Younger workers almost exclusively use online resources in their search on the open job market, however such behaviour is common among adult and older workers as well. There are very few alternatives left, since apart from the weekly Poslovi published by National Employment Service, there are no print editions of classified ad magazines. The most popular among them, Halo Oglasi, discontinued its semiweekly print edition in 2020, while retaining its leading online position. Only some general dailies, such as Politika, occasionally publish a few job ads.

Identifying the job vacancy sources and their characteristics

The source selection procedure follows a standardised methodology described in the Methodological Guide. The expert translates the main keywords into the national and official languages of the country, queries the Google Search engine, and collects the list of websites posting online job vacancies. The keywords used are reported in the table below.

Table 5 Keywords used for job vacancy source identification

Suggested keyword	Query keyword
Job search Serbia	Pretraga poslova Srbija
Online job search sites Serbia	Sajtovi za pretragu poslova Srbija
Find job Serbia	Nađi posao Srbija
Job ads Serbia	Oglasi za posao Srbija
Job recruiting websites Serbia	Job recruiting websites Serbia

The identified sources undergo an assessment of their characteristics using analytical framework to determine their primary features, which are presented in Table 6 and serve as the basis for ranking according to the qualitative and quantitative criteria.

List of job vacancy sources identified

The following sections provide a detailed characterisation of the identified online job vacancy sources in Serbia. This includes both public and private sector portals, general platforms, and specialised websites. The analysis aims to understand the scope, target audience, and primary characteristics of each source as well as the overall market structure, which is a crucial initial step for the subsequent data collection, cleaning, and analysis phases outlined in the project methodology. The complete overview of the surveyed websites is presented in Table 5.

Public Online Job Portals

The National Employment Service ('Nacionalna služba za zapošljavanje' in Serbian)⁶ maintains its own portal 'Poslovi' for job matching, intended for job seekers (primarily unemployed persons) and employers.

Job seekers are provided access to a database of current job vacancies across Serbia, including advertisements from the "Poslovi" ('Jobs') publication published every Wednesday. It also provides information on current public calls for subsidized jobs, self-employment subsidies, work practices and other job and training opportunities, often aimed at young people and other vulnerable groups.

The NES portal is heavily populated by vacancies from the public sector, such as health and education institutions, public administration, local government, public enterprises, state-established independent agencies etc. Public sector employers are obliged to publish their vacancies in 'Poslovi', available for free in both online and offline (paper) versions. Besides, the NES portal is relatively

⁶ The link of website, as available on the 29 June 2026: [HC3 Послови - HC3](#)

popular among private-sector employers advertising vacancies for low- and medium-skilled workers, however they represent a minor part in the total vacancies published online.

The NES accepts cooperation with private job portals, based most likely on bilateral cooperation agreements, which might change over time. At the moment, the NES republishes some of the blue-collar job ads originally published by Infostud Poslovi. On the other hand, the Jooble aggregator republishes some, or most, job ads originally published on the NES portal.

In principle, private sector portals and private employment agencies are, for statistical purposes, obliged to share information on their published vacancies with the National Employment Service (NES), which in turn should process and share them with the Statistical Office of Republic of Serbia (SORS). SORS is envisaged as a cornerstone of the labour market information (LMI) system since it is the only institution that has the capacity to consolidate various administrative and survey information on the labour market in general and specifically on job vacancies. However, the NES acknowledges that the information it gets from private sector portals are not always accurate and complete, and also not submitted in standardized form, which makes them unreliable and difficult to process. SORS is currently in the process of creating a comprehensive LMI system and is preparing for the first-ever Job Vacancy Survey under the guidance of Eurostat.

Private Online Job Portals

The largest and most popular general job portal in Serbia is Poslovi Infostud <https://poslovi.infostud.com/>. It was established in 2006 by a group of young tech enthusiasts from Serbia and soon established itself as a market leader in most economic sectors. The portal self-describes itself as featuring on average over 4,000 job listings every day, having 1+ million users per month and 3.5 million visitors. The portal (or more likely the company Infostud within which it operates) employs over 100 people. Throughout 2025, there were 62,632 job ads on the portal, representing a 15% decrease from 2024. Despite this double-digit decline on the background of stable total employment in Serbia, it is likely that Infostud's leading position on the job market has not been significantly threatened. Rather, the drop most probably reflects a slowdown in GDP and job growth after years of relatively strong performance, as well as worsening business expectations due to both national political crisis and international challenges.

It should be emphasized that portal Poslovi Infostud is a part of company Infostud, which comprises several other business entities, including two more specialized job portals, Helloworld (www.helloworld.rs) and Startuj (www.startuj.infostud.com). Furthermore, there is HR Lab as a separate entity within the company, suggesting Infostud's ambition to provide employers with comprehensive solutions for their recruitment needs and human resource management, but also to educate and influence the wider public.

Helloworld is a leading Serbian job portal in the IT sector, while Startuj advertises vacancies and other career-building opportunities for young people below 30. Importantly, job ads are frequently duplicated across Poslovi.infostud.com and Helloworld.rs, particularly for IT positions. While Infostud lists jobs across all sectors, only IT-related positions (developers, designers, QA, etc.) are typically cross-posted to Helloworld. Because both platforms are owned by the same company, they offer integrated ('combo') advertising packages that allow employers to publish vacancies on both sites simultaneously to reach a larger number of candidates.

Among international job portals, LinkedIn www.linkedin.com/jobs/jobs-in-serbia is the most popular and has the largest presence in Serbia, especially when it comes to professional, managerial and administrative positions in IT and advanced technologies, business and finance, marketing and sales, creative industries and other white-collar jobs. LinkedIn reports about 5,000+ active job ads in mid April, however they include a significant number of remote job positions which are probably advertised globally. LinkedIn is a comprehensive professional job portal allowing users to search for roles, set job alerts, and apply directly using their profile as a resume. Key features include AI-powered job matching, the 'OpenToWork' feature to notify recruiters, and networking tools to connect with hiring managers.

Apart from Poslovi Infostud, there are several other locally established general job portals and classified ad venues with relatively significant market share:

- **Halo oglasi Posao** (www.halooglasi.com/posao) is a section within a leading classified ads portal Halo oglasi which has full national coverage. General job ads are a minor part of this leading general ad platform (e.g. real estate sales and rentals), covering dominantly medium- and low-skill occupations, over 350 active job ads in mid April.
- **Jooble** (www.rs.jooble.org) claims to be the second largest portal in the country, with over 3,000 current job listings daily and the number of visits that match Poslovi Infostud. Unlike Infostud, which is, although a general-type portal, more focused on white-collar jobs (especially within its IT-specialized Helloworld portal), Jooble primarily targets the blue-collar segment of the labour market. Jooble also operates as an aggregator and it republishes the vacancies originally published at the NES portal Poslovi.
- **Lako do posla** (www.lakodoposla.com, 'easy to get a job') This portal was established in 2008. It has national coverage (including some jobs abroad), with over 200 active ads in mid April 2026.
- **Poslovi** (Poslovi.rs): This portal is well-established, with a minor share of the OJV market. It has national coverage (including some jobs abroad) of general job ads, with over 200 active ads in mid April.
- **Manpower** (www.manpower.rs/sr/job-posts?) publishes general job ads but it also offers a variety of HR services to its corporate clients, including handling and processing job applications for its clients.
- **Klikdoposla** (www.klikdoposla.com) is a job portal with national coverage of general job ads and a minor share of the OJV market.
- **Loop** (www.loop.rs) is a job portal with national coverage of general job ads and a minor share of the OJV market.
- **Careerjet** is a large international job aggregator with a massive volume of ads, but its use in Serbia is relatively limited.
- **Indeed** is the largest job aggregator globally. Nonetheless its share appears to be negligible: Indeed does not have a Serbian-language portal.
- **Gdesiposao** (www.gdesiposao.com). This general-type job portal has national coverage, publishes general job ads as well as brief applicants' self-presentations in innovative video format, but apparently has a negligible market share at this moment.

Specialized job portals include Helloworld, the leading portal for IT ads (described above under Poslovi Infostud), Startuj for ads targeting youth under 30 (described above under Poslovi Infostud), and a number of other portals, including:

- **Sljaka.com**: Specializes in quick ads, student jobs and freelance gigs.
- **SBU-poslovi** offers jobs for young people, high school students, college students, recent graduates, and unemployed people up to 30 years old, <https://sbu-poslovi.rs/oglasia-za-posao/>
- **CareerDays.rs**: Business portal primarily intended for young people, brings news about internships and first jobs.
- **Radilica** specializes in job vacancies abroad targeting current Serbian residents.

Table 6 List of collected sources and relevant characteristics

Source name	Type of Job Portal	Type of operator	OJV number	Geographical scope	Economic activity focus	Languages
Careerjet	secondary job-portal	job search portal	2429	international		Serbian
HelloWorld	combination of primary and secondary functions	job search portal	6145	international	J - Information and communication	Serbian/English
Lakodoposla	primary job-portal	job search portal	228	international		Serbian
Jooble	combination of primary and secondary functions	job search portal	3500	international		Serbian
LinkedIn	secondary job-portal	job search portal	1607	international		English
Poslovi Infostud	combination of primary and secondary functions	job search portal	3081	international		Serbian
Poslovi.rs	primary job-portal	job search portal	334	national		Serbian
NSZ	secondary job-portal	public employment service	509	national		Serbian
Halo Oglasi Posao	primary job-portal	classified ads portal		national		Serbian
Manpower.rs	primary job-portal	recruitment agency		international		Serbian/English
FlexJobs	secondary job-portal	job search portal		international		English
Startuj	combination of primary and secondary functions	job search portal		national		Serbian
KlikDoPosla	combination of primary and secondary functions	job search portal		international		Serbian
Loop.rs	primary job-portal	job search portal		international		Serbian/English
MojTrg.rs	secondary job-portal	classified ads portal		national		Serbian
Mjob.rs	combination of primary and secondary functions	company website		national		Serbian
SBU Poslovi	secondary job-portal	job search portal		national		Serbian
OglasZaPosao	primary job-portal	classified ads portal		national		Serbian
Radilica.rs	secondary job-portal	job search portal		international		Serbian

Ranking model

The final step of the landscaping activity is the source evaluation and selection, which is performed following the methodology established in the *Methodological Guide*. Standard criteria and a replicable procedure ensure a consistent and accountable process which are fundamental requirements for trustable statistics. To briefly summarise the steps performed at this stage, the evaluation of sources is composed of two main parts, a qualitative assessment of the importance of each portal in terms of relevance for the country's labour market, performed by labour market experts, and a quantitative assessment of the quality of the source according to the involved stakeholders and considering the technical features of the data production system. The evaluation outputs are two scores, the AHP Score and the Expert Score, one for each of the abovementioned parts, which are then integrated into a single Final score.

Source evaluation

The source evaluation rests on two main pillars. The first is a technical assessment of source quality, focusing on the prevalence of structured information and the presence of relevant variables. The second is an expert assessment of each source's role in the country's labour market, with particular emphasis on its reputation among job seekers and recruiters. The former is the result of a desk activity, while the latter is an independent task assigned to the expert, who is provided with supporting information in the form of a popularity indicator for each source.

The results shown in Table 7 indicate that the two independent evaluations produce considerably different outcomes. A notable finding is the weak positive correlation (0.20) between technical quality and contextual relevance of sources, which highlights the need for a combined evaluation approach to rank them accurately. In contrast, a strong positive correlation (0.94) is observed between expert assessment and the popularity indicator constructed using Google Trends data, suggesting that specialist judgment plays a crucial role in accurately gauging the significance of available online job posting outlets.

Table 7 Sources evaluation

Source name	Share of structured fields	AHP Score	Popularity	Expert score
Careerjet	40%	0.346	11	11
HelloWorld	60%	0.378	6	8
Lakodoposla	20%	0.317	8	7
Jooble	30%	0.306	5	5
LinkedIn	20%	0.252	1	3
Poslovi Infostud	30%	0.288	1	1
Poslovi.rs	30%	0.311	7	6
NSZ	10%	0.251	4	2
Halo Oglasi Posao	20%	0.266	3	4
Manpower.rs	30%	0.363	9	9

FlexJobs	50%	0.351	12	16
Startuj	40%	0.363	10	10
KlikDoPosla	30%	0.289	14	12
Loop.rs	30%	0.384	13	12
MojTrg.rs	10%	0.262	16	14
Mjob.rs	30%	0.282	15	17
SBU Poslovi	30%	0.352	18	17
OglasZaPosao	40%	0.378	18	15
Radilica.rs	0%	0.208	17	19

Source Selection

Sources were selected based on an integration of expert assessments and AHP scores, the results of which are detailed in Table 8.

Table 8 Scores and priority

Source name	AHP Score (quartile)	Expert score (quartile)	Score	Expert comment	Priority
Careerjet	Q2	Q3	3		Medium-Low
HelloWorld	Q1	Q2	2	Leading Job portal in IT; however it republishes Infostud Poslovi ads in a more modern format	Medium-High
Lakodoposla	Q2	Q2	2	Well established Job portal with modest market share	Medium-High
Jooble	Q3	Q1	5	Growing Job portal, repackaging private-sector NSZ ads and expanding own oja	High
LinkedIn	Q4	Q1	5	Wide range of white-collar occupations	High
Poslovi Infostud	Q3	Q1	5	Undeniably OJV market leader in the private sector	High
Poslovi.rs	Q3	Q2	3	Well established jsp with modest market share	Medium-Low
NSZ	Q4	Q1	5	Large monopolistic niche of public sector vacancies	High
Halo Oglasi Posao	Q4	Q1	5	The most popular classified ads portal	High

Manpower.rs	Q1	Q2	2	Limited number but broad	Medium-High
FlexJobs	Q2	Q4	5	Remote and hybrid jobs niche; large number of ojas but vacancies typically not exclusively for Serbian citizens/residents; many part-time and occasional	Low
Startuj	Q1	Q2	2	Specialized ads for young people by an offshoot of Infostud Poslovi - first jobs, temp jobs, work practices etc.	Medium-High
KlikDoPosla	Q3	Q3	5	Relatively new jsp with small market share	Medium-Low
Loop.rs	Q1	Q3	5	Relatively new jsp with small market share	Medium-Low
MojTrg.rs	Q4	Q3	4	Classified ads with small market share	Low
Mjob.rs	Q3	Q4	4	Short-term temp student/youth jobs exclusively	Low
SBU Poslovi	Q2	Q4	5	Short-term temp student/youth jobs exclusively	Low
OglasZaPosao	Q1	Q4	5	Job portal with small market share	Medium-Low

Conclusions

The landscaping analysis is crucial as it informs on the labour market characteristics of the country and its institutional background, which constitute the context in which online job ads emerge. Therefore, on the one hand, we can understand the extent to which the data can be informative and on which kind of phenomena. On the other hand, the acknowledgement of these factors contributes to the identification of the most appropriate uses of the information that is extracted from job ads and creates valuable knowledge for policy intervention. The possible uses of these sources are various, as explained in Mezzanzanica and Mercorio (2019), while the suitability of the data for the application depends both on the type of data retrieved and the segments of the labour demand that are represented by the online job postings.

Serbia has a declining and ageing population. The working age population shrinks even faster than the total population. Serbia's economic growth in the past decade has been stable and relatively strong, and the key labour market indicators improved a lot over that period. However, the total employment plateaued already around 2019 due to both demographic and structural reasons. Nevertheless, the quality of jobs continued to improve, with the decline in inferior informal jobs compensated by the increase in better jobs in registered employment as well as an increase in modern service and industrial jobs at the expense of agricultural jobs. In parallel, the quality of the labour force improved significantly, with a 40% increase in the share of high-skilled and sharp reduction of low-skilled workers among the working-age population. Labour shortages have become widespread since the late 2010s.

These developments activated a sort of self-regulating labour market mechanism. Labour shortages contributed to the increase in real wages, and even more notably in euro wages, since the national currency, the dinar, is informally pegged to euro. This in turn attracts more foreign workers who tend to fill vacancies in occupations, activities and sectors where the emigration of Serbians to richer EU countries is the strongest, such as construction, transport, hospitality etc. The policy of the government was also accommodating - for example, by supporting substantial increases in the minimum wage and relaxing the conditions for employment of foreign citizens.

During this transformation of defining features of the Serbian labour market from high unemployment to labour shortages, another transformation was also achieved - Serbian job ads have become practically completely digitalized and at the same time more representative of the whole labour market. Some fringe segments of that market remain offline or non-competitive, but this is not significantly different from modern labour markets elsewhere. Examples include small family businesses, family-owned farms, some personal services such as housekeeping / cleaning etc.

The maturity of the Serbian online job market is confirmed by the fact that key service providers on that market are well established, and their market share has been relatively stable for years. At the same time, the job portal market appears to be competitive enough, with a number of new entrants offering innovative services to employers and job seekers, while established market leaders continue to innovate and expand their operations. Even niche markets, such as those for student/youth gig offline jobs, are well covered by several portals.

All these developments suggest that the applied big data methodology has a good potential to fairly accurately reflect the key features of the demand and supply on the Serbian online labour market, as well as to identify key players and market leaders among job portals.

ACRONYMS

E.T.F.	European Training Foundation
AHP	Analytic Hierarchy Process
API	Application Programming Interface
ESCO	European Skills/Competences, qualifications and Occupations
GDP	Gross domestic product
KDD	Knowledge Discovery in Databases
KPI	Key Performance Indicators
LFS	Labour force survey
LMI	Labour market information
NEET	Not in employment, education or training
NES	National Employment Service
NGO	Non-governmental organisation
OJV	Online Job Vacancy
DPS	Data Production System
Q&A	Questions and answers
MCIT	Ministry of Communications and Information Technology
MB/S	Megabits per second
RCC	Regional Cooperation Council
SORS	Statistical Office of the Republic of Serbia
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund

References

- Andjelkovic, B. et al. 2021. Digging into digital economy in Serbia: who are the digital workers from Serbia and why do they work on global platforms? Public Policy Center Belgrade.
- Arandarenko, M. 2026., forthcoming, *Report on consolidated global population and labour force data for the Republic of Serbia by combining Census data and other statistical data of the Republic of Serbia and the destination countries*, UNFPA.
- Arandarenko, M., 2022. Migration, skills and the labour market. National human development report–Serbia.
- Baldwin, R., 2019. The globotics upheaval: Globalization, robotics, and the future of work. Oxford University Press.
- Krstić, G., Anić, A. and Reilly, B., 2025. The gender wage gap across the unconditional wage distribution in a period of uncertainty: findings from Serbia. *International Journal of Manpower*, 46(9), pp.1642-1658.
- Kuek, S.C., Paradi-Guilford, C., Fayomi, T., Imaizumi, S., Ipeirotis, P., Pina, P., Singh, M. (2015). *The Global Opportunity in Online Outsourcing*. World Bank, Washington, DC: World Bank.
- Leitner, Sandra M. 2021. "Net Migration and its Skill Composition in the Western Balkan Countries between 2010 and 2019". *Policy*
- Nikitović, V. editor 2025. *Stanovništvo Srbije - dinamika i strukture, 2022*. Republički zavod za statistiku. (Population of Serbia - dynamics and structures, 2022, SORS)
- RCC, 2025. *Western Balkans Digital Economy and Society Index, 2024 Report*, Regional Cooperation Council, Sarajevo.
- Radonjić, O. and Bobić, M., 2021. Brain drain losses—a case study of Serbia. *International Migration*, 59(1), pp.5-20.
- Vladislavljević, M., 2020. Wage premium in the state sector and state-owned enterprises: Econometric evidence from a transition country in times of austerity. *Economics of transition and institutional change*, 28(2), pp.345-378.
- Voza, D. and Fedajev, A., 2023. *The influence of age on digital literacy in Serbia*. 21st International Conference on Management, Enterprise, Benchmarking. Proceedings
- World Bank 2025. *Govtech maturity index 2025: Tracking Public Sector Digital Transformation Worldwide*, World Bank Group.