

BARMETAL



Digitalization, Automatization and Decarbonization: Opportunity for Strengthening Collective Bargaining in the Metal Sector

SERBIA policy report

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Introduction

The report aims at presenting the main challenges/changes relevant for working conditions with respect to digitalisation, automatization and decarbonization in the Serbian metalworking industry. It provides relevant inputs for the BARMETAL Project's main research question on how the new forms of work and training related to these changes are addressed or can be addressed via collective bargaining. The main focus is on the importance of re-skilling and up-skilling as relevant topics that need to be included in broader social dialogue and collective bargaining on various levels.

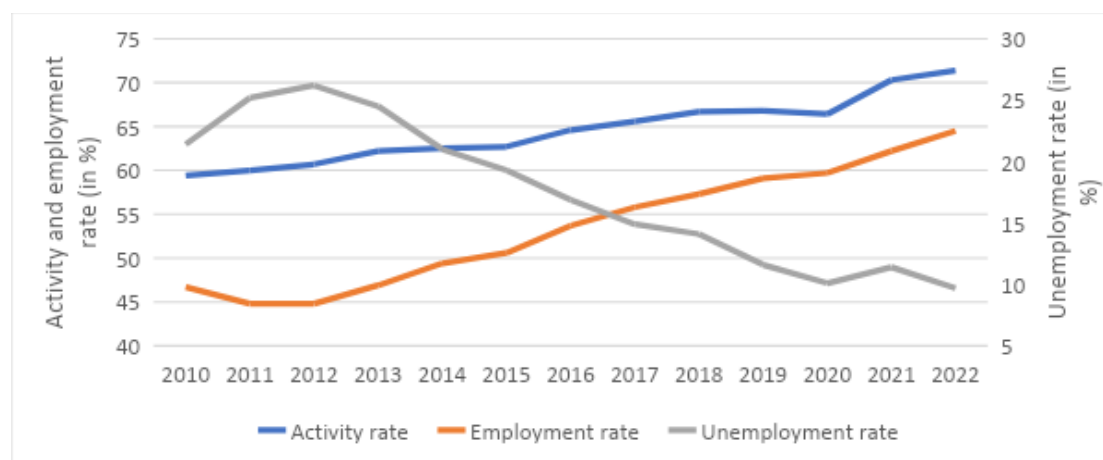
To collect relevant data, a combination of desk and field research methods was applied. Secondary data were collected from a variety of sources including peer-reviewed articles and monographs, strategic documents and analytical reports, legal documents, newspapers and press releases and institutional web sites. Primary data were collected in field research based on qualitative research techniques which included company visits and personal interviews with relevant stakeholders.

Chapter 1 provides a brief description of the labour market in Serbia, with a special focus on employment and basic economic indicators in the metal industry, in particular of three selected sub-sectors. Chapter 2 provides a deeper insight into industrial relations and collective bargaining in the metal industry. Chapter 3 describes government initiatives and a strategic framework for industrial development based on a new industrial policy coupled with smart specialisation and low carbon print strategies. Chapter 4 brings a few examples of DAD strategies implemented in Serbian companies as well as DAD effects on working conditions and collective bargaining. Case study analyses of two selected companies are presented in Chapter 5. After a brief methodological note and justification of cases, the chapter provides a deeper insight into company-level collective bargaining, ongoing digitalization and automatization processes and their effects on working conditions, skill related changes and initiatives to develop adequate training programs. The main findings are presented at the end of report with an aim to provide inputs and ideas for policy makers and other stakeholders interested in initiating social dialogue on the new topics emerging from DAD related changes and its effects on the labour force in Serbia.

1. National and sectoral labour market situation

The overall labour market situation in Serbia has improved substantially since the global economic crisis in 2008. The positive trends in the labour market lasted for almost a decade, only to be slightly interrupted in 2020 due to the outbreak of the Covid-19 pandemic. The most significant improvement was recorded in the employment rate which increased by almost 20 percentage points (p.p.), while the activity rate increased by 12 p.p. At the same time, the unemployment rate plummeted from its peak in 2012 (26%) by about 15 p.p.

Figure 1 - The basic labour market indicators for the working age population (15-64) in Serbia, 2010-2022



Source: Labour Force Survey, Eurostat.

Although there was an improvement in the labour market according to all basic indicators, the quality of employment remained an issue. The annual average wage growth between 2010 and 2018 was just about 0.3%. A substantial wage increase occurred in 2019, but the high inflation during the Covid health crisis erased and real gains and returned the wage growth to the previous trend.

According to the comparative data from the Structure of Earnings Survey, Serbia is a country that has had an above average share of low wage earners. In 2014 about 23% of workers made less than two-thirds of the median wage. Although the share decreased in 2018 to 18% it was still above the EU average of 15% (Eurostat). Another look into wage distribution can be provided by the ratio of the median to the average wage. According to the latest data from the Serbian Statistical Office, the median wage is 75% of the average wage.

Temporary employment in Serbia has constantly increased since 2010. As a result, the share of employees on open-ended contracts in Serbia dropped from 89% in 2012 to just 78% in 2022, while at the same time, the EU share fluctuated between 84% and 85% (Eurostat). Besides workers on fixed-term contracts, a strong increase is also recorded among those who work on seasonal and occasional jobs, service contracts, and other non-standard work arrangements. The latter remains an important issue in the public discourse regarding current regulations concerning social dialogue, unionisation and collective bargaining. Namely, issuing a special Law on Seasonal Work to regulate employment under non-standard work arrangements in 2018 and its more recent suggested changes and extensions drafted in 2021 provoked a public debate. The academic community and various civic organisations, both local and international, pointed at unconstitutional restrictions to the unionisation of seasonal workers (Bukvić, 2022) that would allow further precarisation of seasonal workers (Reljanović, 2022).

The share of part-time workers in Serbia has continuously decreased since 2014 when it reached its peak at 11%. In 2022 the share was 6% which is three times lower than the EU average. However, unlike in the EU, a great portion of part-time employment in Serbia is involuntary. In 2010,

about 45% of workers in Serbia worked a part-time job simply because they could not find a full-time one. This share dropped to 30% in 2022, but it is still significantly higher than the EU average of 20% (Eurostat).

Traditionally, the manufacturing industry including the metal sector has played an important role in the overall economy of the Republic of Serbia, measured by share of employment, contribution to GDP and GVA, as well as its strong export potential. Since the Statistical Office of the Republic of Serbia (SORS) does not aggregate sub-sector data into one Metal sector, in accordance with the NACE Rev. 2, we present data for three relevant sub-sectors as the best approximation of the Metal sector that are in line with the BARMETAL project’s main focus, including:

1. C24 - Manufacture of basic metals
2. C25 - Manufacture of fabricated metal products, except machinery and equipment
3. C29 - Manufacture of motor vehicles, trailers, and semi-trailers

The latest data suggest that about 2.6% of GVA is made by three sub-sectors: C24, C25 and C29. Regarding taxes and subsidies, it was responsible for more than 2% of total GDP. However, its contribution to the overall GDP declined in the past decade, since the values in 2012 were 3.6% and 3%, respectively. As the data for 2019 show, the decline was probably not caused by Covid-19, but rather is a long-term trend due to the deindustrialisation process and prolonged transition. Although the Metal sector suffered a reduction in volume, it has recorded relatively high real growth rates in comparison with both Manufacturing and the economy average. While the 10-year real cumulative growth for the economy was 30% and 21% for Manufacturing, C24 and C29 recorded a cumulative growth of 75% and 57%, respectively. On the other hand, C25 decreased by 5%. Table 1 below shows values of the selected sub-sector contributions to GVA and GDP in 2012, 2019 and 2022.

Table 1. Significance of the Metal sector in Serbia at different points in time

Sub-sector, Nace Rev. 2	2012		2019		2022*	
	% of GVA	% of GDP	% of GVA	% of GDP	% of GVA	% of GDP
C24	0.12	0.10	0.24	0.20	0.12	0.10
C25	2.84	2.40	2.06	1.70	1.90	1.60
C29	0.59	0.50	0.85	0.70	0.60	0.50

*Preliminary data

Source: Own calculations based on the SORS data

The Metal sector has also had a large impact when it comes to employment. In 2022, more than 5.8% of all formal workers were employed in the observed sub-sectors. It also accounts for more than a quarter of total Manufacturing employment. In contrast to the shrinkage in contribution to the GVA and GDP, the number of registered employed nearly doubled in the past decade, from 78,000 to 131,000. These developments contributed to an increase in the corresponding shares which amounted to 4.2% in 2012. Figure 2 below shows the share of registered employment in the observed sub-sectors as well as manufacturing industry overall.

Figure 2. Increasing employment* in metal sector over the last decade



*Registered employment

Source: Own calculations based on the CROSO data

The above-average growth of production and employment in the Metal sector in the last decade owes its sharp increase to Foreign Direct Investments (FDIs). The Metal sector in Serbia has become very attractive for FDIs due to relatively low labour costs and high Government subsidies. One recent study found that more than one-third of the country's FDIs during the 2016-2020 time span went to the portion of Manufacturing that covers the three observed sub-sectors, but also the Manufacturing of computers, electronics and optical products sub-sector. Additionally, over half of all newly created jobs by the FDIs in the same period are in these three sub-sectors (Arandarenko et al, 2021). Moreover, the metal sector has always had a strong export potential. As figure 3 below clearly shows the overall share of the Manufacturing industry was almost 75%, the three observed metal industry sub-sectors contributed by 24.3 % in total exports, with the highest contribution of C29 – manufacturing of motor vehicles, trailers and semi-trailers.

Figure 3: Metal sector contribution to overall export in 2021

Source: Statistical Yearbook of the Republic of Serbia 2023, SORS

Apart from the observed three sub-sectors, within the metal industry in Serbia C28 - Manufacturing of machinery and equipment n.e.c. contributed to another 3% in the share of total exports in 2021. However, its overall contribution to total exports, GVA and turnover remained relatively smaller than the other three. On the other hand, with a total share of employment (CROSO 15+) of 0.8 % in 2022, this sub-sector is comparable with C24 - Manufacture of basic metals (see Figure 2).

2. Insight into industrial relations

Workers organizations in Serbia have a long tradition dating back to the end of 19th century and the Workers Confederation (*Radnički savet*), the first trade union confederation in Serbia was established in 1903 (Pavlović, Marković, 2013). As the predecessor of the Confederation of Autonomous Trade Unions of Serbia (*CATUS, Savez samostalnih sindikata Srbije, SSSS*), this organization was established upon a decision made by a number of professional and local worker organizations in the branches of construction, metal manufacturing, commerce and printing to associate into the first trade union confederation in Serbia. Accordingly, the metal industry in Serbia contributed to unionisation by establishing the Union of Metal Workers in 1901, which remains among the oldest national worker associations. Their leaders and members have actively participated in collective bargaining and the implementation of various activities to protect workers' rights in the metal industry throughout the 20th century.

The establishment of worker associations in Serbia is granted by the Constitution and further regulated in detail by the Labour Code. Worker associations may be established on various levels, including company, industry/sectoral, territorial, and national levels.

At present, several trade union confederations can be distinguished at the national level – the Confederation of Autonomous Trade Unions of Serbia (*CATUS, Savez samostalnih sindikata Srbije, SSSS*), the United Branch Trade Unions (*UGS Nezavisnost*), the Confederation of Free Trade Unions (*CFTU – Konfederacija slobodnih sindikata*) and the United Trade Unions of Serbia (*Sloga*). The first two are currently recognised as representative at the national level, and as such, are eligible to participate in social dialogue as entitled members of the Socio-Economic Council (SEC). On the other hand CFTU, though recognised as representative by the relevant Ministry in 2012 (*Official Gazette, RS, br. 55/12*), it is not a member of either Socio Economic Council nor any other relevant tripartite body. Another nation-wide confederation, ASNS, lost its representativeness almost 20 years ago and its membership and influence have been on a long-term decline.

In addition to the listed union umbrella organizations, there are several smaller unions organized at the sectoral and company levels that do not belong to any headquarters. On the industry level, the biggest trade unions in the metal sector are the *Autonomous Trade Union of Metal Workers* (affiliate member of CATUS). In addition, metal workers are unionised within *UGS Nezavisnost, Sloga* and a non-affiliated *Industry Trade Union of Serbia (Industrijski sindikat Srbije)*.

Industrial relations in Serbia are regulated by the comprehensive body of labour legislation, including the cornerstone Labour Code, as well as the Law on Peaceful Settlement of Labour Disputes and The Rulebook on the Registration of Collective Agreements. Additionally, Serbia has ratified two fundamental international conventions of the International Labour Organization (ILO) covering the freedom of association, i.e. C087 – the Freedom of Association and Protection of the Right to Organise Convention and C098 – the Right to Organise and Collective Bargaining Convention.

After the democratic changes that facilitated the privatization of former ‘socially-owned’ firms in the early 2000s, there has been a steady drop in trade union density. According to the latest available OECD data, the density decreased from 33.3% in 2010 to 26.4% in 2014. The adjusted bargaining coverage rate, which is a share of employees with the right to bargain, decreased even more from 55% in 2010 to 30% in 2019. The other side of the bargaining spectrum has similar coverage, with an employer organisation density of 25% in 2019 (OECD & AIAS, 2021).

While the public sector continued to have a high (albeit declining) trade union density, the union density in the private corporate sector is very low. Ironically, the sharp decline in private dependent employment in the first decade of the millennium was the single element that significantly reduced this tendency. Consequently, the reduction of overall union density was accelerated with the expansion of private employment after the

Recession. Some recovery in trade union membership in private sector within the overall continuous declining trend could be ascribed to the expansion of foreign direct investment, since some foreign investors, especially from EU countries, have been more permissive toward worker organizations than their local counterparts.

According to the Labour Code, an employer association may be established provided that its members employ a minimum of 5% of employees in a particular branch/sector/industry and/or territory. However, the interest of local employers in Serbia to form employer associations is weak or non-existent. Therefore, in many industries collective bargaining on sectoral or territorial levels in Serbia is not possible due to non-existence or non-representativeness of the relevant negotiating party on the side of employers. At present, there are four nation-wide as well as five industry-level employer associations in Serbia (Institut za industrijske odnose, 2023).

The only representative association of employers in Serbia is the *Serbian Association of Employers (SAE)* (srb. *Unija poslodavaca Srbije*). Not only is SAE the sole nationally representative employer organization, in recent years it has remained the only one recognized as a representative of the interests of employers at any level of social dialogue and an entitled member of SEC.

In addition, all companies operating in Serbia are legally obliged to associate within the Serbian Chamber of Commerce (PKS). PKS offers diverse services to business entities mainly in regard to the improvement of their export potentials, international promotion and collaboration as well as advocacy of various business and/or regulatory initiatives. Further, PKS has several sectoral associations, one of which is the Association of Metalworking and Power Industry. However, these sectoral associations within PKS are mainly focused on the protection of business interests whereas the issues regarding social dialogue and collective bargaining are out of scope of their activities.

As presented above, while the density of trade unions has been declining, the number and coverage of employers' associations are rather limited thus making social dialogue and collective bargaining difficult or even impossible in many instances. Representativeness of both workers' and employers' associations remains the primary constraint hindering possibilities for collective bargaining on any level.

The criteria for representativeness of both industrial relations actors are defined by the Labour Code. In the case of trade unions, to be considered as a representative in bipartite social dialogue, at least 15% of company employees must be members of the trade union. The condition for representatives at the national level is somewhat relaxed, so to be nationally recognized, union membership must exceed 10% of total employment. On the employers' side, the legal requirement for representativeness at the national level is that an employer association unites at least 10% of all registered employers who employ at least 15% of the total number of workers in the country.

Collective bargaining in Serbia operates on all three levels (company, sectoral and national), but with varying importance. In line with it, three types of collective agreements are recognized in the Labour Code: 1) general, 2) sectoral collective agreement and 3) company related collective agreement. The last general collective agreement in Serbia was concluded between SAE and two representative Trade Unions (CATUS and UGZ Nezavisnost) in April 2008. In accordance with the Law, in 2011 it became ineffective as the new general collective agreement had not been signed.

The national level of collective bargaining is the most important one from the macroeconomic standpoint. While a general collective agreement is still non-existent, negotiations on the minimum wage are fully centralised and binding for the entire economy. The national tripartite dialogue is institutionalized within the Social Economic Council (SEC). The SEC has 18 members, including six from the Government (representatives from the Ministry of Labour, Employment, Veteran and Social Affairs and other relevant departments) six from trade unions (4 from CATUS and 2 from UGS Nezavisnost), and six from employer representatives (all from the SAE). Although the SEC has a rather broad goal and mandate, in reality its concertation is limited to setting the minimum wage and discussing numerous socioeconomic issues.

On the other hand, around 20 sectoral level collective agreements are in effect and thus publicly listed in accordance with The Rulebook on the Registration of Collective Agreements (Official Gazette, no. 22/97). Sectoral level collective agreements are the dominant form of collective agreements in the public sector in which all, but a few collective agreements were signed. The newest nation-wide sectoral collective agreement in private sector was signed in May 2023, covering construction building industry.

Despite the long-standing presence of trade unions in the Serbian metal sector, there is no sectoral or sub-sectoral level collective agreement. The last sectoral level collective agreement in metal sector negotiated in 2011 (available at <http://www.iio.org.rs>), became ineffective after the enactment of the revised Labour Code in 2014. The revisions restricted the so-called 'extended enforcement' of sectoral collective agreements, which made most sectoral collective agreements in private, including the metal sector, unenforceable as SAE membership does not cover enough private sector employees to secure automatic enforcement in these sectors. Furthermore, the revisions also undermined collective agreements at the company level since the regulator had prescribed that all collective agreements in force at the moment the new law was passed would become ineffective within a six-month period (Reljanović, Ružić, Petrović, 2016).

With both national and a wide range of sectoral level collective agreements non-existent, company-level social dialogue remains the most important, while company-level agreements are still the most common type of collective agreements in Serbia. Company-level negotiations are mostly done by large private sector firms. The union density in private sector is quite low and collective bargaining is mainly reserved for the larger, often foreign-owned companies.

Serbia's industrial relations system is comparable to the fragmented, government-centred approach, typical of other central and eastern European nations that underwent the transition to a market economy in the 1990s. If anything, the disparity in power and legitimacy level between the unions and employer organizations, on the one hand, and the state, on the other hand, is much more pronounced in Serbia. A good example is the minimum wage setting in the last couple of years when the minimum wage was increased by means of a government decision, as consensus could not be reached within the SEC.

While the majority of interactions between the state and non-state actors are characterized by acquiescence, there is considerable conflict between employer organizations and unions as well as between different union confederations, which has led to a cycle of fragmentation and weakness among non-state industrial relations actors.

According to a recent assessment of the European Commission, social dialogue in Serbia remains weak especially in regard to the participation of social partners in the development of relevant policies. It concludes that there is still much room for improvement when it comes to strengthening the capacity of the actors of social dialogue in order to foster collective bargaining (European Commission, 2022).

3. D-A-D and its effects

Industrial growth has traditionally been a cornerstone of overall Serbian economic development. The industrial Policy Strategy of the Republic of Serbia for 2021-2030 is the umbrella strategy fully aligned with another relevant document - *A Renewed EU Industrial Policy Strategy* issued in 2017. The Industrial Policy Strategy in Serbia represents the main horizontal (i.e. sector-neutral) policy document **addressing the issues of education, fostering innovation, digital transformation, investment, infrastructure, internationalisation and circular economy**. In regard to DAD, the key intervention areas revolve around 1) human resources development to meet the needs of further industrial development, 2) promotion of digital transformation and provision of informative – education and advisory support as well financial incentives to companies in support of implementation of digital technologies and automatization of processes and 3) fostering the transformation from a linear to circular economy based on low-carbon solutions that would allow further industrial development and market competitiveness. Among numerous enlisted measures (Industrial Policy Strategy 2021-2030, pp 34-41), **harmonising digital education with the industry needs** as well as **incentive programmes aimed at strengthening of industry staff digital skills through an informal education system** seem particularly relevant for further empowering human resources. However, while education and training related issues are considered as areas of bargaining that are more likely to be initiated on national or industry (sectoral) level (Aidt, Tzannatos, 2008), neither the Strategy

nor any other relevant public policy document envisages any related activities. On the other hand, the Agency for Qualifications of the Republic of Serbia (AfQ) has been the most relevant governmental institution, responsible for the development of educational programmes while meeting the current and envisaged needs of public and private sector. Various Sectoral Councils, including the Sectoral Council for Industrial Development covering also metal sector, operate as advisory bodies under the auspices of the AfQ involved in the recognition of the new qualifications needs on Serbian labour market.

In line with horizontal industrial policy as described above, vertical (sectoral) policies should focus on the listed issues in light of specific sectoral characteristics as well as the relevance of DAD. To a certain extent the vertical policies are integrated within the “Smart Specialisation Strategy of the Republic of Serbia for the period 2020-2027”, targeting four selected industrial sectors, including traditional, digitally transformed and newly established sectors. An assessment indicating that the machinery and equipment manufacturing industry (belonging to metal sector) **can achieve further growth by increasing the degree of its automation, adapting to developments of Industry 4.0** placed it among the four priority sectors envisaged by this document.

As of 2023, after three years of public debate in the form of workshops, roundtables and discussion involving numerous social partners the new “Low Carbon Development Strategy for period 2023-2050” has been adopted. The document envisages that by 2050, the Republic of Serbia will become a low-carbon country with highly competitive and efficient provision of new green jobs for its citizens, assuring a high quality of life in a climate change resilient environment. In line with such a vision, the Strategy sets a list of specific goals and interventions, including **the promotion of transformation into a climate neutral economy, and a climate change resilient society** which should be achieved through education and training for new skills as well as raising awareness in the sphere of climate change. The Strategy has taken into consideration the potentially negative effects of its implementation on the labour market (net job losses), primarily affecting Mining and Distribution of electrical, gas and steam energy sectors, as well as large companies. On the other hand, it also envisages that positive labour market effects might also be expected in wood industry for example as well as small and medium size companies (SMEs).

As a candidate country, over the accession process to the EU, Serbia has undertaken activities to adjust its regulatory and strategic frameworks, including the European Green Deal, issued by the European Commission in 2019. The ministry for Environmental Protection of the Republic of Serbia thus formed the Special Working Group for a Circular Economy with the aim of supporting private companies in Serbia to overcome perceived barriers in transformation of their traditional business models towards circular economy. As a result, the Roadmap for Circular Economy in Serbia was issued in 2020, in support of initiating discussion among relevant stakeholders who can contribute to creating and implementing systematic change toward green transition. The roadmap focuses mainly on the four selected sectors, including the manufacturing industry and the belonging metal sector.

Against such a background, the public discourse on DAD is dominated by governmental initiatives, stemming from the accession process and transposition of the EU regulatory and strategic documents. Yet, such initiatives predominantly focus on the manufacturing industry and metal sector due to its overall contribution to economic growth and its biggest export potentials. In line with that, with the support of numerous associate partners and international donors, the Ministry for Environmental Protection and relevant governmental bodies promote the concept of a circular economy to local companies, pushing them toward a more intensive use of digital technologies and green energy which is mentioned in the discussion with our stakeholders in the two companies selected for country case studies. It was noted that an important push forward also comes from larger international companies who have entered market through FDI, particularly from the EU. Due to the newly EU acquired standards as well as the changing EU customer requirements and expectations, metal export companies are moving toward implementation of new processes and production solutions to assure competitiveness on the EU markets.

4. Sectoral relevance of DAD – responses via collective bargaining

The public discourse on DAD is predominantly initiated by the media, academia, civic organizations, and governmental initiatives. In part, the larger metal sector companies - many of which who started their operations in Serbia through FDI from well-established EU and international players in the global market - also pave the way to the transition to Industry 4.0 and electrification of production processes and/or outputs. For example, in January 2023 Metalac - a large metal company with long history in the Serbian market - organized a panel titled *Industry 4.0 – form practice to practice* to promote discussion within the national programme of industrial development issued in 2019 – *Digital Platform for Industry 4.0 in Serbia* (GMinfo, January 24th, 2023). Additionally, the case of powerful Stellantis car manufacturer operating in Serbia (Fiat Serbia) shows strong determination toward further development of Serbian automobile industry through automatization and digitalisation of production processes. The company invested in setting up new production facilities for electric vehicles under one of the company's strong brands (FIAT 500L) that had been produced in its plant Kragujevac, Serbia. In April 2022, Stellantis announced that a new platform for the production of electric vehicles in Kragujevac will be installed and put into operations in spring 2024 (33% of shares being still owned by the Government of Republic of Serbia). The company managers acknowledged an important role of its production site in Serbia in the overall implementation of their Dare Forward 2030 strategic plan (Press release of April 28th, 2022). However, as the plan resulted in a temporary cease of production, coupled with downsizing and the need for reskilling and upskilling of production workers, the planned modernisation and transition toward production of electric vehicles raised public concerns followed by disputes initiated by union representatives and dissatisfied local workers (Radio Free Europe, June 16th, 2022). After several rounds of unsuccessful bargaining between the company and trade unions, upon local worker requests, representatives of the Government of Serbia facilitated the agreement on the

social programme for Fiat workers assuring acceptable severances for voluntary redundancy and improved conditions for temporary work-based training in one of Stellantis factories in Slovakia (Radio Free Europe, June 28th, 2022).

The Stellantis case also points at the relatively low interest of trade unions in DAD related issues, and its potential effects on work and employment (i.e. job losses and new skills requirements). The main focus of trade unions are still basic workers' rights including decent remuneration and working conditions as well as adequate severance in case of redundancy. The former has also been confirmed in the interviews with our informants (representatives of trade unions on sectoral and company levels), who pointed at the main purpose of collective bargaining being ensuring decent salaries, guaranteed working hours and duration of shifts, guaranteed number and duration of breaks over eight-hour shifts, vacation days and remuneration in accordance with the law, as well as healthy and safe work environment and similar. A recent case of a warning strike organized by the trade union Sloga in PKC wiring systems company (N1, December 10th, 2023) is indicative of the nature of everyday struggles of many company trade unions in the metal sector to ensure basic worker rights. Bargaining for decent work conditions at present leaves relatively little space for the topics such as DAD, which has recently appeared as relevant in highly developed labour markets in the EU. Even with a notion that this particular sub-sector (wiring industry, supplying conventional car manufacturers) will be particularly affected further by the development of electric vehicles, the trade union representatives we interviewed do not perceive upskilling and reskilling emerging as the important topics in collective bargaining.

5. Case studies

5.1. Justification of cases and methodological notes

For the case study analysis on how DAD impacts collective bargaining in metal sector in Serbia, two companies were selected, based on the following general criteria: 1) belonging to sectors C24, C25 and/or C29 and 2) being an OEM or supplier. We decided to select one local metal manufacturing company (Company 1) and one international company with a production site in Serbia (Company 2). Both companies are large, well recognized on the local market yet strongly export-oriented. Company 1 is a local company, whose metal production operations date back to 1959. Company 2 is a greenfield investment by a big international system with a head-office in Munich (Germany), who opened a new production site in Serbia in 2009. Both companies have representative trade unions active in collective bargaining. Both companies have introduced the LEAN/KAIZEN system encouraging worker's active participation in improving working processes and the working environment. Both companies have made initial steps toward DAD, by introducing digital and automatized managerial processes, as well as digitalisation and automatization of production to the extent allowed by specific technological processes related with their outputs. In addition, considering circular economy, both companies have shown

determination for further electrification and have made decisions to install solar panels that would supply energy for their production processes and heating.

The company visits took places in July and September 2023. During the visits, researchers had an opportunity to observe the production sites and operations and conduct personal interviews with trade union and employer representatives, workers, and managers. For the interviews, we used the instrument (a semi-structured interview guide) developed for the purposes of BARMETAL project. In total, 16 interviews were collected (the list of interviews is provided in the Annex 1 attached).

5.2. Company 1: Shrinking voices of workers

The company incorporates various business units, four of which are metal producers within C24, C25, C28 and C29 sub-sectors, employing more than 2000 employees. The company was founded in 1959, and over the next decades, grew into one of the largest kitchen utensil producers on both national and international markets. Like most of the companies operating in time of socialism as the dominant social economic model, Company 1 was socially owned. This specific ownership structure was also coupled with the so-called self-management, which assumed a high influence of employees (both blue- and white-collar workers) on company business decisions and overall operations. In 1998, the company was transformed into a public share-holding company passing the sole responsibility for its business decision making to professional management. Thanks to an insider method of privatization (employer-employee buyout), workers retained some influence within the company. At present, in addition to the still large production of metal kitchen utensils, separate entities with the group also produce other metal products including boilers, heaters, faucets and stainless steel sinks. In 2015, the group took over a local motor vehicle producing company and as a result, broadened its production portfolio to add various types of metal parts for commercial vehicles. Besides OEM production, it also produces more than 3,000 products for almost all types of commercial vehicles of a number of well-known European manufacturers in the automobile industry.

Workers in Company 1 have a union history of more than half a century and currently, there are two active trade unions, *Samostalni sindikat metalaca Srbije* (member of CATUS), which is the only representative on the company level, and UGS Nezavisnost. The company management has always considered social dialogue and promotion of unionisation highly important and thus strongly incorporated in the company culture. As a result, more than 80% of employees are members of one of these two unions. Existing collective agreement is subject to continual improvements through negotiations between the workers' representatives and management. Workers councils are non-existent.

However, the trade union representative's perception is that social dialogue within the company has been under a greater risk than before, due to increasing employer power on sectoral level coupled with fears for jobs on the side of workers as well as decreasing worker interest in trade union membership due to various reasons.

The voice of the workers is still heard through us, but I believe it could be heard more. Workers are generally in a state of fear. The climate has been created to favour employers, not unions. (TU representative, Serbia)

In Company 1, two way communication between workers representatives and managers through face-to-face consultations and intermittent meetings are still present, yet they are becoming highly dependent on personal relationships, and goodwill of the acting managers. Collective bargaining is an on-going process in which new issues are raised every six months. The primary focus is still on general issues regarding salaries and working conditions whereas issues regarding DAD and its potential effects are not mentioned. When prompted to speak about new investments in technology, interviewed trade union representatives on both sectoral and company levels claimed that main managerial decisions including DAD are made without consultations with trade union representatives.

Collective bargaining, negotiations mainly focus on vacations, wages (basic wages, increases, allowances and other incomes, technological redundancy, sometimes about organizing a strike and its procedure. When it comes to investments, employers generally do not inform employees on investments nor on technical or technological changes. (TU representative, Serbia)

The awareness of the changes resulting from DAD and its potential effects on skills and jobs seems low. There are still no concrete initiatives to bargain over DAD and the related issues, such are for example potential risk of job losses and growing needs for pre-skilling, re-skilling and up-skilling through education and training. However, there are workers who seem aware of the need to acquire new skills to adjust to changing technologies while keeping their posts as well as to improve their personal position and obtain a higher salary. Not all are ready to cope with the new challenges, thus voluntarily leaving the company as their outdated skills are no longer needed. In general, younger workers link digitalisation and automatization with positive changes, including improved work safety, making the operations easier and more efficient and providing better personal position and higher salary.

Many people who have been working in the factory for a long time don't want to accept the new ways, but in reality, it's a lifesaver. I think my position is stronger in the company. Now they are more dependent on me. Simply because I've learned something that others don't know. (Production worker, Serbia)

The company has acquired LEAN business model and KAIZEN philosophy that foster higher efficiency and effectiveness of operations and cost savings. In line with it, operation workers are encouraged to present their ideas and suggestions for the improvement of production and relevant processes. For presentation of their ideas and suggestions on how to improve some operations, workers are offered small financial incentives and publically rewarded. However, workers are not equally supported to make complaints and share their critical opinion in regard to working conditions, job requirements, training needs and similar issues. In accordance, interviewed trade union representatives claim that in many companies, complaints procedures are hidden or insufficiently transparent. Thus, it is typical that suggestions are passed directly toward managers, while complaints are still addressed indirectly through their union leaders.

I have received more than 5 awards for ideas. You will see the notice board where the name and surname are displayed along with the amount of the award and what was proposed. The more useful the idea, the higher the reward. We call it the 'blue mailbox,' the committee reviews, evaluates, and rewards it. (Production worker, Serbia)

Managers in Company 1 are convinced that digitalization and automatization have led to significant changes. These mainly refer to new job requirements and related needs for re-skilling and up-skilling of workers whose skills are obsolete or incompatible with the new technologies. On the positive side, they see that DA has contributed to improved safety, efficiency and productivity. The operational work has been facilitated, and thus most of the workers who are ready to acquire new skills still remain at their posts working with automatized machines. In accordance with the specific production technology of various metal products in the company portfolio, the potential for digital transformation and full automatization are only partial. However, the company plans to continue investing in new technologies and further automatization and digitalisation of processes. On the other hand, decarbonisation remains a separate process. In part it is supported by the expected cost savings in energy supply as the company and its production sites are heavily dependent on electrical energy. The company has already invested into the installation of new solar panels and plans to expand its solar grid in the near future, in accordance with the government determination for circular economy and use of sustainable sources of energy.

By automatizing production, we expect to enable workers to work easier and safer on machines with better quality and improved productivity. Digitalisation of the process provides managers with a better insight into the production operations, its effectiveness and efficiency, better control of machine operation and avoidance of slowdowns. (Technological developer, Serbia)

In light of Industry 4.0 technological changes and strong determination toward its implementation, Company 1 takes part in the newly adopted dual education system in Serbia and provides various types of trainings internally as well as through external training providers. However, these issues are still outside the scope of company social dialogue and are primarily initiated by management, being implemented through the company human resources department.

5.3. Company 2: Evolving voices of workers

Company 2 is a greenfield investment of a large international group, who opened a new production site in Serbia in 2009, employing around 650 workers in the manufacturing of steel components for excavators, dumpers, wheel loaders and telehandlers (classified under sub-sectors C25 and C28). It operates as a supplier of components for manufacturing various kinds of construction building and agriculture machines for sister plants in Austria and Germany which belong to an international group.

In 2022, the company increased its investments, opening a brand-new production plant to increase production capacities, thus reaching a total of around 800 employees. Meanwhile, digitalization and automatization of operations were almost impossible due to inadequate production facilities. The new plant had been planned and constructed based on

the vision of a fully digitalised processes and production automatization. With an overall investment of around 100 million Euros over a 15 year period, the company has positioned itself as the leader in acquiring new Industry 4.0 technologies on international market. Initiatives toward DAD came from the company headquarters in Germany in line with the new EU standards and customer requirements, while the internal managerial team was responsible for the development and implementation of new processes in close cooperation with external suppliers of modern technologies.

Collective bargaining in Company 2 began only about a year ago, when a group of workers associated in the sectoral trade union *Samostalni sindikat metalaca Srbije* (member of CATUS). A collective agreement was signed on the company level in December 2022, for a period of 3 years including a clause that collective bargaining will be reactivated to negotiate other important issues affecting working conditions and workers compensations.

Strong cooperation within the international system and the support obtained from the Workers Council in one of its companies in Germany contributed to unionisation and initiation of collective bargaining in Company 2. In only 1.5 years, around 45% of employees joined the trade union, with the majority of them being production workers (60%). However, many are still reluctant and/or even afraid to actively participate in trade union bodies and trade union activities. Consequently, the Trade Union Assembly has still not been established and the only operational body at present is their Managerial Board. As is the case in Company 1 there are no workers' councils, and such these are generally perceived as managerial allies.

In Serbian companies, I don't know if they have workers councils, there are only trade unions. Where there is no union, the workers are fearful, they don't want to establish a union. Where there is a workers' council, it is usually formed by the employer, and it is in its interest and not in the interest of the workers. One company has a workers council yet only managers are members as they participate in company decision making on the side of employer. The President of a trade union in Serbia can't participate in company management as in our Law, this is an assumed conflict of interest. (TU representative, Serbia).

Collective bargaining mainly addresses issues related to working conditions and compensation. DAD is not recognised as an important issue within social dialogue. Decision to invest in DAD was made at the company level. It was pushed from the mother company in Germany and implemented by the local management of the plant in Serbia. Digitalisation and automatization were implemented primarily within the storage system and initial production phase (cutting material), while further automatization is planned in the internal transport of semi-finished products.

We have eliminated all manual handling, and everything operates automatically and is digitally managed. (Technological developer, Serbia)

Digitalisation and automatization have contributed to an increase in productivity, work safety, facilitation of work operations, building new capacities and an overall increase of production and employment. After the decision to invest in the new production site,

more than a hundred new employees were recruited on the local market, most for managerial positions, with high qualifications. The transformation has affected changes in needed skills and the closure of certain manual work posts, yet it has brought the opening new posts requiring different skills. To fill the vacancies the company organised additional trainings of current workers or recruited skilled workers from the local labour market.

There was available skilled labour force at the labour market. Some people were locals who had worked abroad, so we brought them back from the Czech Republic. (Technological developer, Serbia)

The company has introduced an internal training centre for employees as well as non-formal work-based learning to the unemployed registered at the local PES. It has also entered the newly developed system of formal dual education thus collaborating with the relevant institutions and providing in-company trainings for welders.

We have invested in the establishment of our internal training centre to train workers as automatization is a relatively new process and our labour force is not sufficiently trained to cope with its challenges (HR manager, Serbia).

Readiness for acquiring new skills for new jobs requirements induced by Industry 4.0 is highly individual. Younger workers generally opt for upskilling or reskilling, unlike older workers whose reluctance to acquiring new skills often results in job losses or voluntary leaving the company. However generally, while reducing the number of workers in certain posts, automatization is perceived to reduce stress, facilitating many operations, and making the work more efficient, while increasing productivity and safety.

I expect a lot more things to change, I've worked a lot on myself. I think there are opportunities for professional development. This is one part of automation, soon I hope there will be more. (Production worker, Serbia)

Contrary to the implementation of digitalisation and automatization processes, the trade union has indirectly contributed to speeding up the process of decarbonisation. It was regarded in the context of a healthy work environment and thus raised as one of the most important topics over collective bargaining.

We exerted pressure, we negotiated, since the ventilation had not been installed yet, we sent a request to the management, they held a meeting with the workers, explained why it was not finished yet, what the deadlines were, so that we could follow up, to negotiate should the deadline not being met (TU representative, Serbia).

Like in the previous case, decarbonisation has been implemented independently from digitalization and automatization. Due to specific production operations and technologies, a move toward decarbonisation was made by introducing a new fleet of electric forklifts and building power stations to charge them. In accordance, the company plans to install solar panels for production for use in production process as well as heating. Moreover, decarbonisation is in line with the envisaged public policy measures and

initiatives as well as the restrictions set both by the Government of Serbia and EU standards and customer requirements.

6. Findings

In general, there is scarce evidence that DAD might open a new space for collective bargaining, which should refocus from traditional topics such as compensation for work and proper working conditions, to the newly appearing challenges addressing workers competences, requiring re-skilling and up-skilling. As the new topics generally refer to education and training related issues, it is worth reconsidering the need for initiating of social dialogue at the upper levels, such as sectoral and even national levels.

DAD undoubtedly affects the position of workers within the company and changes labour market demand. Automatization reduces the number of workers needed at certain posts, yet not necessarily requiring higher competencies of those who would serve fully automatized processes. Thus, re-skilling would be needed for those whose posts are closed while up-skilling would also be required in cases where automatized and digitalized processes may call for higher qualifications. In any case, the role of trade unions is to envisage such changes and protect worker interests. Unfortunately, there is still low evidence in Serbia on their awareness of new processes and the induced risks.

Social dialogue on DAD is practically non-existent. In part it could be explained by the overall lack of social dialogue due to a decreasing trade union density, as well as a lack of representative employers' associations. The already weakened position of trade unions in Serbia might be even more negatively affected by DAD particularly where the new technologies would call for employing qualified workers who typically show the lowest unionization rate.

Yet in another part, it should also be noted that the interest of trade union representatives in DAD issues and their relevance for collective bargaining seems to remain quite low. Several initiatives on the side of other stakeholders (e.g. foreign projects, civic organisations, even policy makers) to open discussion on DAD and its effects resulted in rather low participation of trade union representatives.

The diminishing position of trade unions in Serbia partially stems from the regulatory framework in accordance with which only those officially employed could become union members. In line with that, there are a few categories of workers including those employed on a fixed-term or service contracts including free-lancers, digital nomads and seasonal workers that cannot be unionised. However in the metal sector, the share of these atypical work arrangements is still negligible particularly among production workers. However, should DAD stay neglected in social dialogue and collective bargaining, further precarisation and increasing redundancy of low-qualified workers may be expected.

In addition, there are both pessimistic and optimistic views of the impact of DAD. While some projections conducted at a national level imply a slight decrease in employment (net job loss), it is not equally applicable in all sectors and companies. A more optimistic

scenario refers to metal sector, in which DAD does not particularly affect job loss, yet it may lead to improved productivity, increased competitiveness resulting in net jobs gains requiring higher qualification, and thus opening space for up-skilling and re-skilling of workers. In line with that, it seems opportunistic to open broad national social dialogue within Socio-economic Council on establishing special fund (e.g., Skills fund), with financial contributions paid both from the side of companies and government to allow further trainings for changing labour market. The stress may be put on non-formal trainings and work-based learning rather than on formal education which is much slower and less flexible in meeting the needs of fast changing technologies.

Finally, it is evident that automatization and digitalization should emerge in social dialogue in the short-run, while the process toward decarbonisation in the metal industry will likely follow in the longer run. However, Serbia's accession process to the EU, issued public policies and the determination of the Serbian government into its implementation, coupled with the changing customer needs in the international market will speed up this highly export oriented sector to adjust to the changing business environment and thus acquire new standards including low carbon emissions.

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Annex 1

List of interviewed stakeholders

No	Title	Affiliation	Gender	Education	Position within company
1	Trade union representative	Samostalni sindikat metalaca in Company 1	Male	High school	President of trade union

2	Trade union representative	UGZ Nezavisnost – sectoral level	Male	High school	Vice president of trade union
3	Trade union representative	Samostalni sindikat metalaca in Company 2	Male	University degree	President of trade union
4	Trade union representative	Industrijski sindikat – sectoral level	Male	University degree	President of trade union
5	Production worker	Company 2	Male	Vocational education (four years)	Specialist for automatization of warehouse procedures
6	Production worker	Company 1	Male	Vocational education (three years)	Line operator
7	HR manager	Company 2	Female	University degree	HR manager
8	HR manager	Company 1	Female	University degree	HR manager responsible for trainings and dual education
9	HR manager	Company 1	Female	University degree	HR manager responsible for general employment issues
10	Legal Advisor	Company 1	Female	University degree	HR manager responsible for legal issues
11	Technological developer	Company 1	Female	University degree	Lean Kaizen coordinator
12	Technological developer	Company 1	Male	University degree	Production operations manager
13	Technological developer	Company 2	Male	University degree	Production operations manager
14	Technological developer	Company 1	Male	University degree	Director of Technology and Development
15	Employers' association representative	Association of Metalworking and Power Industry (PKS)	Male	University degree	Senior advisor
16	Expert	Consultancy company	Female	University degree	Senior consultant for formal and

					informal education
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