

Article

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Wage Determination in the Western Balkans: The Role of Intra-Regional Labour Mobility

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Abstract: Personal earnings from work significantly determine living standards, poverty, and social exclusion in society. According to existing theories, there are several factors affecting wage determination, the most prominent being labour productivity and workers' bargaining power. The impact of intra-regional labour mobility on wages in the Western Balkans has so far received little scholarly attention, partly because it was considered less relevant than the region's well-documented emigration. This paper assesses the factors influencing wage determination in the Western Balkans, including intra-regional labour mobility. The results suggest that labour productivity and total employment have a significant positive impact, while there is no clear evidence regarding the number of work permits issued. These findings have important policy implications for future regional cooperation in the domain of intra-regional labour mobility.

Keywords: wages; productivity; labour mobility; employment

Introduction

Although the Western Balkan countries¹ have substantially reduced the initially high unemployment experienced during the post-transitional period, they still struggle to attain wage levels that provide a decent standard of living for the majority of the

¹ The Western Balkan region consists of the following countries: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia.

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population.² Since wages are the most prominent determinant of household well-being, the region's stagnant real wages compared to more developed European countries are considered an important factor in the rates of poverty and social exclusion in these countries, which have remained at relatively high levels. The suboptimal labour market outcomes during the post-transition period were largely the result of the initially high unemployment, followed by a sharp decline in real wages that remained stagnant despite subsequent reductions in unemployment. Consequently, the standard of living in the Western Balkan countries is well below the European Union (EU) average and, although the gap is gradually closing, based on current trends, it could take them at least 70 years to catch up.³ Over the last few years, wages across the Western Balkans have grown significantly despite stagnating labour productivity. In 2023, for instance, wages increased by an average of 8.4 %, while the labour productivity growth was only 0.2 %.⁴

The problem of low labour productivity in the Western Balkans and the persisting gap vis-à-vis the EU27 has been highlighted in many studies. In 2023, the average labour productivity in the region was a mere 36 % of the EU's.⁵ Some of the reasons for low productivity are underinvestment in infrastructure and the energy sector, corruption, informality, inefficiency of the public sector,⁶ low pace of human capital development (Nikoloski 2020),⁷ as well as skills shortages and the associated labour market distortions, such as depopulation due to high emigration rates.⁸ Another concerning issue in the Western Balkans is the relatively high unit labour

2 "Multi-dimensional Review of the Western Balkans: Assessing Opportunities and Constraints." Organisation for Economic Co-operation and Development (OECD). 10 June 2021. <https://doi.org/10.1787/4d5cbc2a-en> (accessed 14 January 2026).

3 "Can the Western Balkans Converge Towards EU Living Standards?" European Bank for Reconstruction and Development (EBRD). February 2024. <https://www.ebrd.com/home/news-and-events/publications/can-the-western-balkans-converge-towards-eu-living-standards.html#> (accessed 14 January 2026).

4 "Western Balkans Regular Economic Report No. 26: Retaining the Growth Momentum." World Bank. Fall 2024. <https://doi.org/10.1596/42267> (accessed 14 January 2026).

5 "Western Balkans Competitiveness Outlook 2024: Regional Profile." OECD. 26 June 2024. <https://doi.org/10.1787/170b0e53-en> (accessed 14 January 2026).

6 "Can the Western Balkans Converge Towards EU Living Standards?" EBRD. February 2024.

7 "Economic Convergence Scoreboard for the Western Balkans 2023". OECD. 11 October 2023. <https://doi.org/10.1787/2f4b0366-en> (accessed 14 January 2026).

8 Mara, Isilda, and Michael Landesmann. "Use it or Lose it! How do Migration, Human Capital and the Labour Market Interact in the Western Balkans?" European Training Foundation (ETF). 2022. <https://www.etf.europa.eu/en/publications-and-resources/publications/use-it-or-lose-it-how-do-migration-human-capital-and-labour> (accessed 14 January 2026); "Labour Migration in the Western Balkans: Mapping Patterns, Addressing Challenges and Reaping Benefits." OECD. 16 May 2022. <https://doi.org/10.1787/af3db4f9-en> (accessed 14 January 2026).

costs, which considerably reduce the region's competitiveness.⁹ For the years between 2015 and 2023, real wages did not reflect productivity growth in most Western Balkan economies. This gap was particularly notable for Albania and Bosnia and Herzegovina, where real wages increased at double-digit rates despite the aggregate decline in labour productivity. Even though the other Western Balkan economies actually experienced an increase in labour productivity, their real wage growth outpaced the productivity growth.¹⁰ This is in contrast with the decoupling of average compensation and productivity characteristic of high-income countries, where compensation growth significantly lags behind productivity growth (Dosi, Virgillito, and Yu 2020; Paternesi Meloni and Stirati 2023).

With respect to economic performance, regional cooperation among the Western Balkan countries is a precondition for improving the business climate, boosting national direct investment, and attracting foreign direct investment (FDI), which is the basis for increasing employment and improving the well-being of citizens in the region.¹¹ The gradual increase in regional cooperation has mainly been driven by a shared vision of EU integration, while the obstacles to intra-regional labour mobility identified a decade or more ago have been significantly reduced. These included the poor economic situation, restrictive legislation, problems with the recognition of qualifications, outdated transport infrastructure, lack of bilateral agreements on financial transactions, and limited information on job vacancies.¹² Recent developments in regional cooperation favour intra-regional labour mobility, which can have several benefits for the entire region, including fewer skills mismatches, increased competitiveness of firms, less pressure on public finances, and potential wage effects by improving labour allocation.

In light of the above considerations, this paper aims to assess the factors affecting wage determination in the Western Balkans, including the impact of

9 Reiter, Oliver, Monika Schwarzappel, and Robert Stehrer. "Productivity and Competitiveness of the Western Balkan Countries. An Analysis Based on the wiiw Western Balkan Productivity Database." The Vienna Institute for International Economic Studies (wiiw). June 2020. <https://wiiw.ac.at/productivity-and-competitiveness-of-the-western-balkan-countries-an-analysis-based-on-the-wiiw-western-balkan-productivity-database-dlp-5340.pdf> (accessed 21 January 2026).

10 "Western Balkans Regular Economic Report No. 25: Invigorating Growth." World Bank. Spring 2024. <https://doi.org/10.1596/41404> (accessed 14 January 2026).

11 Mara and Landesmann. "Use it or Lose it! How do Migration, Human Capital and the Labour Market Interact in the Western Balkans?" ETF. 2022; Mijović Hristovska, Bojana, Borce Trenovski, Tamara Mijović Spasova, and Dimitar Nikoloski. "What are the Benefits of Economic Integration for North Macedonia." *Analytica – Skopje*. 2022. https://analyticamk.org/images/Media/2022/_Economic_4_strani_poveke.pdf (accessed 21 January 2026).

12 Vidovic, Hermine. "SEE 2020 Strategy: Study on Labour Mobility." The Vienna Institute for International Economic Studies (wiiw). October 2015. <https://wiiw.ac.at/see-2020-strategy-study-on-labour-mobility-dlp-3662.pdf> (accessed 21 January 2026).

intra-regional labour mobility. The role of intra-regional labour mobility has so far received little scholarly attention, partly because it was considered less relevant than the region's well-documented emigration.¹³ In this research, I determine whether and to what extent the potentially improved labour allocation resulting from intra-regional labour mobility affects wages. Based on this, policy recommendations will be formulated to improve the outcomes of regional cooperation and prevent brain drain from the Western Balkans.

Theoretical Background

The market clearing wage, defined as the wage at which demand equals supply of labour, is a theoretical concept that is rarely achieved in practice. This is because the labour market is shaped by imperfections due to barriers preventing wages and employment from adjusting to changes in supply or demand. Some of these barriers to adjustment are economic in nature, reflecting the intrinsic deficiencies of the market mechanism. For instance, changing jobs often means a worker has to invest in new skills or move elsewhere which has financial implications. For employers, hiring workers often involves an initial investment in recruitment and training, while firing workers or cutting their wages is considered unpopular and negatively affects the productivity of those who remain.

The widely adopted theory in modern economics with respect to wage determination is the marginal productivity theory. This states that the remuneration of a worker is equal to the value of their marginal product as the marginal contribution to production. Hence, for an employer, it is beneficial to hire additional workers until the marginal product is zero (Van Biesebroeck 2015). Once the marginal product exceeds the marginal cost, it is profitable for the employer to increase the size of their workforce and pay their workers higher wages. Conversely, when the marginal product exceeds the marginal cost, any additional labour reduces the firm's total output due to the law of diminishing returns.¹⁴ The microeconomic reasoning behind employers' behaviour in optimising performance is then translated into macroeconomic outcomes. Hence, from a macroeconomic perspective, this theory suggests that productivity influences wages (Wakeford 2003; Goh 2009).

¹³ "Labour Migration in the Western Balkans." OECD. 2022.

¹⁴ Meager, Nigel, and Stefan Speckesser. "Wages, Productivity and Employment: A Review of Theory and International Data." Institute for Employment Studies. May 2011. <https://research.brighton.ac.uk/en/publications/wages-productivity-and-employment-a-review-of-theory-and-internat/> (accessed 21 January 2026).

An alternative approach to wage determination in modern economics is the efficiency wage theory. This theory assumes that paying workers according to their marginal productivity of labour is not a sufficient incentive for good performance (Schlicht 2016). The company may find it beneficial to increase workers' wages with a view to gaining loyalty and improving productivity. Hence, an optimal efficiency wage is achieved at the point where the marginal cost of an increase in wages equals the marginal benefit of improved productivity for a given worker. There are several arguments used to explain the efficiency wage mechanism (Nikoloski 2023). The most important assumption in all models is the twin role played by the wage rate. From the traditional neoclassical standpoint, wages only interfere in the allocation process, i.e. linking supply of and demand for labour, while in the efficiency wage theory, wages play an additional role, which varies depending on the model's assumptions. For instance, in an incentive-driven model, higher wages also motivate workers to keep their jobs and, consequently, increase their productivity. The argument behind this assertion is that if workers are better remunerated, they have more to lose from redundancy. Therefore, if the wage a worker is paid in their current job is significantly higher than that paid in alternative jobs, their motivation to put more effort into increasing their productivity will be greater. The "shirking model" developed by Shapiro and Stiglitz asserts that workers with higher wages will put more effort into their jobs and avoid shirking (Shapiro and Stiglitz 1984). In addition, the "gift exchange" model assumes that higher wages modify the relationship between employers and employees by making the latter feel more attached to the firms they work for and more motivated to increase their productivity. Finally, higher wages make it less likely that workers will quit, which is especially important for employers when recruiting and training new workers is a costly and time-consuming undertaking (Burki 1995).

Wage setting occurs as part of the bargaining process between workers and firms, while the division of surplus is determined by the relative bargaining power of the two parties. If firms pay their workers less than the marginal revenue product of labour, a productivity–wage gap arises. This refers to the observed divergence between the rates at which workers' productivity and workers' wages increase.¹⁵ The theory assumes that the productivity–wage gap will widen if workers' bargaining power vis-à-vis their employers diminishes. Hence, the labour market conditions reflected in the level of employment are expected to influence labour market outcomes, including productivity and wages (Nikoloski 2009).

Finally, labour mobility is considered an enabling factor for improved labour allocation. In this context, migratory movements affect the number of workers in the

¹⁵ The productivity–wage gap, which has been observed in developed economies since the end of the twentieth century, is also known as the "great decoupling" (Brynjolfsson and McAfee 2013).

economy, thus changing the labour supply in certain occupations and industries in both countries of origin and destination. Consequently, the wage level in the destination economy is expected to decrease due to excess labour supply, while wages in the economy of origin are expected to increase due to a potential labour shortage. However, the impact of immigration on labour market outcomes depends mainly on the skill structure of immigrants relative to that of domestic workers. If immigrants differ from native workers in terms of skill composition, then migration will imply wage adjustment in the destination country (Dustmann, Glitz, and Frattini 2008). The movement of skilled workers, along with their human capital, creates spillovers through the diffusion of knowledge within the new environment, leading to productivity improvements (Pöschl and Foster 2013; Piva, Tani, and Vivarelli 2023). In addition, labour mobility can significantly reduce labour shortages, thereby improving the skills match between labour demand and supply and having a positive effect on aggregate labour productivity. In this context, the empirical findings reveal that individuals are more likely to migrate if their occupations are in shortage in the destination country. A shortage of skilled labour in the country of origin, on the other hand, tends to reduce workers' migration aspirations (Beckers et al. 2024).

The History of Regional Cooperation in the Western Balkans

The beginning of substantial regional cooperation in the Western Balkans dates back a decade, to 2014, when a diplomatic initiative was launched titled the “Berlin Process”. The aim of this initiative was to leverage the potential of increased regional cooperation in the Western Balkans, with a view to improving cooperation with the EU during the integration process. The idea was to foster specific projects that would increase connectivity in the region, strengthen relations between neighbours, and support EU integration. The 2014 Final Declaration by the Chair of the Conference on the Western Balkans defined the following goals: (i) resolution of outstanding bilateral and internal issues; (ii) achieving reconciliation within and between the societies in the region; (iii) enhancing regional economic cooperation; and (iv) laying the foundations for sustainable growth.¹⁶

In 2017, the Regional Cooperation Council presented the Multiannual Action Plan for the Regional Economic Area (MAP REA), which was approved by the Western Balkan leaders at the Trieste Summit within the Berlin Process on 12 July 2017. The

¹⁶ “Final Declaration by the Chair of the Conference on the Western Balkans.” The Berlin Process. 28 August 2014. https://www.berlinprocess.de/uploads/documents/chairs-final-declaration-2014_1714043796.pdf (accessed 14 January 2026).

initiative aims to “enable the unobstructed flow of goods, services, capital and highly skilled labour; make the region more attractive for investment and trade; and to accelerate convergence with the EU, with the final goal of bringing prosperity to Western Balkan citizens”.¹⁷ The coordination mechanisms for MAP REA are established in each country, with MAP REA coordinators and points of contact also being appointed. The principle of “all-inclusiveness” is promoted in all bodies involved in the coordination and monitoring of activities within the MAP REA. However, the implementation of MAP REA has faced many challenges and bilateral disputes in the region, which have affected its overall progress.

In 2019, an initiative for closer regional cooperation titled “Mini-Schengen” was launched, which sought to advance political and economic relations and strengthen cultural ties between the nations. Mini-Schengen was initiated by three countries – Albania, Serbia, and North Macedonia – and in this respect differed from previous regional initiatives that had included all six Western Balkan countries. The aim of this initiative was to reverse the trends of rising populism and Euroscepticism by supporting localised integration through economic and social incentives.¹⁸ In this context, it was announced that border controls between the three countries were expected to be abolished by 2023. In addition, the leaders signed three documents: (i) a memorandum of understanding and cooperation to facilitate imports, exports, and the movement of goods; (ii) a memorandum of understanding on cooperation regarding free access to the labour market; and (iii) an agreement on cooperation in the field of protection against natural disasters. This list has continued to grow to this day, with several additional mutual agreements being signed (Dhimolea 2022).

In 2021, a regional initiative was launched by North Macedonia, Albania, and Serbia under the name “Open Balkan”. Its goals are to provide greater opportunities for trade and student exchange, as well as to encourage the integration of the Western Balkan region. In this context, citizens of these member states will need only an ID card to visit the other states in the initiative, which would make border crossings more efficient. The initiative aims to strengthen economic integration and

17 Hanzl-Weiss, Doris, Mario Holzner, Isilda Mara, and David Pichler. “Multi-Annual Action Plan for Regional Economic Area in the Western Balkans.” Regional Cooperation Council. December 2020, 11-2. https://www.rcc.int/download/docs/MAP-REA-diagnostic-2020_final.pdf/bca13b12d680817743-ce04381375b4d8.pdf (accessed 14 January 2026).

18 “Regional Cooperation in the Western Balkans. Regional Economic Area, the ‘Mini-Schengen’ and the Common Regional Market.” Balkan Policy Research Group. January 2021. https://balkansgroup.org/wp-content/uploads/2021/02/Regional-Cooperation-in-the-Western-Balkans_Regional-Economic-Area-the-mini_schengen-and-the-Common-Regional-Market-WEB-1.pdf (accessed 14 January 2026); Mijović Hristovska, Bojana, Borče Trenovski, Tamara Mijović Spasova, and Dimitar Nikoloski. “Free Movement of the Workers.” *Analytica – Skopje*. 2022. https://www.analyticamk.org/images/Media/2022/_Workers_4_strani_poveke.pdf (accessed 20 January 2026).

prepare Western Balkan economies for EU membership. To this end, a memorandum of understanding on free access to the labour market was signed to facilitate the free movement of persons and ensure easy, free access by abolishing work permits and simplifying procedures for residence permits.¹⁹

Data and Methodology

In the empirical analysis, I use a panel dataset covering the six Western Balkan economies for the period 2010–2022. The data on gross average monthly wages, gross domestic product (GDP), and total employment are obtained from the Vienna Institute for International Studies (wiiw) database, ensuring their comparability across the Western Balkan region. Average gross monthly wages consist of total wages and salaries in cash and in kind, before deduction of taxes and social security contributions. They include wages and salaries, remuneration for time not worked, bonuses, and gratuities paid by the employer to the employee, all expressed in euros. Employment is expressed as the total number of people employed, as estimated by the Labour Force Survey. Labour productivity per person employed is calculated as the ratio of GDP to total employment.

Intra-regional labour mobility is estimated based on the number of work permits issued to Western Balkan citizens. The data for the period under consideration is obtained from the employment agencies of the Western Balkan countries and, since work permits are temporary, represent flows of workers. A work permit is a legal document that grants individuals official permission to seek employment, work, and earn a salary in a foreign country, also ensuring their employment is recognised and protected under local laws.²⁰ A major advantage of using work permit data is its focus on labour migrants. Labour migrants' migration decisions are mainly driven by economic motives, while this is not always true for non-labour migrants. In contrast, the partly informal nature of migration should be acknowledged as a possible source of distortion.

The methodological approach used to assess the factors affecting wage determination is based on a dynamic panel data model with the following specification:

19 Tumanoska, Despina, and Marjan Petreski. "Labor Mobility Preconditions for the Regional Economic Integration: Pros and Cons from Macedonian Perspective." Finance Think – Economic Research and Policy Institute. September 2023. https://www.financethink.mk/wp-content/uploads/2023/09/Studija-br.-47_EN.pdf (accessed 14 January 2026).

20 There are 18 missing observations in the labour mobility data (2010 and 2011 for Albania; 2010–2017 for Kosovo; 2010, 2015, and 2016 for Montenegro; and 2010–2014 for Serbia).

$$y_{it} = \sum_{j=1}^p \alpha_j y_{i,t-1} + \beta_1 \mathbf{x}_{it} + \beta_2 \mathbf{w}_{it} + v_i + \epsilon_{it} \quad (1)$$

where α_j , β_1 , and β_2 are the parameters to be estimated, y_{it} is the dependent variable, as described below. $y_{i,t-1}$ is the one-year lagged dependent variable, \mathbf{x}_{it} is a $1 \times k_1$ vector of strictly exogenous variables, \mathbf{w}_{it} is a $1 \times k_2$ vector of predetermined or endogenous variables, v_i are the panel-level effects, and ϵ_{it} is the i.i.d. error term²¹ over the whole sample with variance σ_ϵ^2 . The v_i and ϵ_{it} are assumed to be independent for every i over all t .

In this model, the dependent variable is the natural log of average gross monthly wages, while the natural log of labour productivity is the endogenous variable, with the potential impact of productivity on wages under the efficiency wages assumption discussed above. In this context, an endogenous variable is defined as a variable appearing in a model that is affected by the dependent variable or, alternatively, a variable with one of the following characteristics: (i) it is correlated with omitted variables that also affect the outcome; (ii) it is measured with error; or (iii) it is correlated with the model's error term. In contrast, the total employment and the number of work permits issued to Western Balkan citizens are considered exogenous variables.

Since the dependent variable y_{it} in equation (1) is a function of unobserved individual effects, this is also the case with the lagged dependent variable y_{it-1} . Therefore, y_{it-1} is positively correlated with the error, which biases the OLS estimation. Similarly, fixed-effect estimation via demeaning introduces negative correlation between the transformed lagged dependent variable and the error term, leading to downward bias. The most appropriate technique for estimating Equation (1) is the system generalised method of moments (GMM) introduced by Blundell and Bond (1998), which addresses endogeneity by using lagged variables as instruments.²² It constructs valid instruments from both lagged levels and lagged differences of the endogenous variables, estimating a system of equations, one for each time period (Bond 2002).²³

²¹ i.i.d stands for independent and identically distributed.

²² This method is also known as the Arellano-Bover/Blundell-Bond estimation.

²³ Supplementary materials about the dynamic panel data modelling and GMM estimation can be found at Vossen, Valerie. "Dynamic Panel Data Estimation with System-GMM." Tilburg ScienceHub. <https://tilburgsciencehub.com/topics/analyze/causal-inference/panel-data/system-gmm/> (accessed 14 January 2026).

Empirical Analysis

The improvement in economic conditions following the Great Recession were reflected in increased employment and rising wages in the Western Balkan countries. This trend was broken during the early period of the Covid-19 pandemic, when monthly gross wages fell, though they have subsequently returned to pre-pandemic levels.²⁴ The trends of average wages and unemployment rates in the Western Balkans show gradual convergence. The coefficient of variation in average monthly gross wages decreased from 37 % in 2010 to 24 % in 2022, while the coefficient of variation in unemployment rates decreased from 43 % in 2010 to 18.4 % in 2022. This suggests that labour markets in the Western Balkan region are becoming more homogeneous, which is one of the main preconditions for establishing a common regional labour market.

The description of variables under consideration, together with their descriptive statistics, is presented in Table 1. We can see that the panel is unbalanced due to missing observations for the work permits variable. In addition, there is particularly high variability between countries in terms of the number of work permits issued, while the lowest variability is observed for gross monthly wages and productivity measures. For instance, the average gross wage in the Western Balkan region during the analysed period is 567.5 euros with an overall standard deviation of 162 euros, while the average productivity is 46,400 dollars per employee with an overall standard deviation of around 10,000 dollars. The mean employment is 994,000 with an overall standard deviation of 811.5. The average number of work permits issued is 3,025.6 with an overall standard deviation of 5,147.3.

The relationship between log values of gross monthly wages and labour productivity in the Western Balkan countries for the period 2010–2022 is depicted in Figure 1. This figure suggests that in all Western Balkan economies, there is a clear positive relationship between gross monthly wages (vertical axis) and labour productivity (horizontal axis). A similar positive relationship between labour productivity growth and wage growth has been identified in other studies, but there it was associated with a weaker wage–productivity nexus than in “EU peer countries”.²⁵ In

24 Astrov, Vasily, Sebastian Leitner, Isilda Mara, Leon Podkaminer, and Hermine Vidovic. “Wage Developments in the Western Balkans, Moldova and Ukraine.” The Vienna Institute for International Economic Studies (wiiw). April 2020. <https://wiiw.ac.at/wage-developments-in-the-western-balkans-moldova-and-ukraine-dlp-5287.pdf> (accessed 20 January 2026); Barlett, William, and Nermin Oruc. “Labour Markets in the Western Balkans 2019 and 2020.” Regional Cooperation Council. 11 June 2021. <https://www.rcc.int/pubs/120/labour-markets-in-the-western-balkans-2019-and-2020> (accessed 14 January 2026).

25 In this study, Austria, Bulgaria, Croatia, and Hungary are considered EU peer countries. “Western Balkans Labor Market Trends 2019.” World Bank Group and the Vienna Institute for International

Table 1: Description of variables and related descriptive statistics.

Variable	Measurement unit		Mean	Standard deviation	No. of observations
Wage (<i>W</i>)	Average gross monthly wage (euros)	Overall	567.5	161.975	N = 78
		Between		153.419	n = 6
		Within		79.791	T = 13
Total GDP (<i>GDP</i>)	PPP, current international \$ (billion)	Overall	44.8	39.492	N = 78
		Between		41.241	n = 6
		Within		11.131	T = 13
Employment (<i>EMPL</i>)	Number of employed persons (LFS, thousand)	Overall	994	811.554	N = 78
		Between		872.089	n = 6
		Within		128.865	T = 13
Productivity (<i>PROD</i>)	GDP per employed person	Overall	46.4	10.003	N = 78
		Between		8.096	n = 6
		Within		6.687	T = 13
Work permits (<i>WPERMITS</i>)	Number of work permits is- sued to WB citizens	Overall	3026	5147.358	N = 60
		Between		5439.665	n = 6
		Within		1139.615	T-bar = 10

Source: Author's calculations.

addition, the online Appendix 1 presents the growth indices of productivity and average gross wages for the Western Balkan economies. In this respect, in all cases except Bosnia and Herzegovina, wage growth outpaces productivity growth, which does not corroborate the global trend observed in high-income countries (the so-called “great decoupling” between labour productivity and real wages). According to the World Bank,²⁶ the key factors contributing to the widening of the wage–productivity gap are automatic minimum-wage increases, strong public sector wage bargaining, and a record worker shortage. In this context, there is a concern about the sustainability of wage growth, as it risks fuelling inflation.

I then conduct cointegration tests to determine whether there is a stable long-run relationship between gross average monthly wage and labour productivity. If the series are cointegrated, the relationship between the variables can be interpreted as a long-run equilibrium. The cointegration tests show that the gross average monthly wage and labour productivity are cointegrated; that is, the null hypothesis of no cointegration is rejected in all cointegration tests performed (Kao, Pedroni, and Wasterlund tests). The Stata outputs are presented in online Appendix 2.

Economic Studies (wiiw). 19 March 2019. <https://www.worldbank.org/en/region/eca/publication/labor-trends-in-wb> (accessed 20 January 2026).

26 “Western Balkans Regular Economic Report No. 26.” World Bank. 2024.

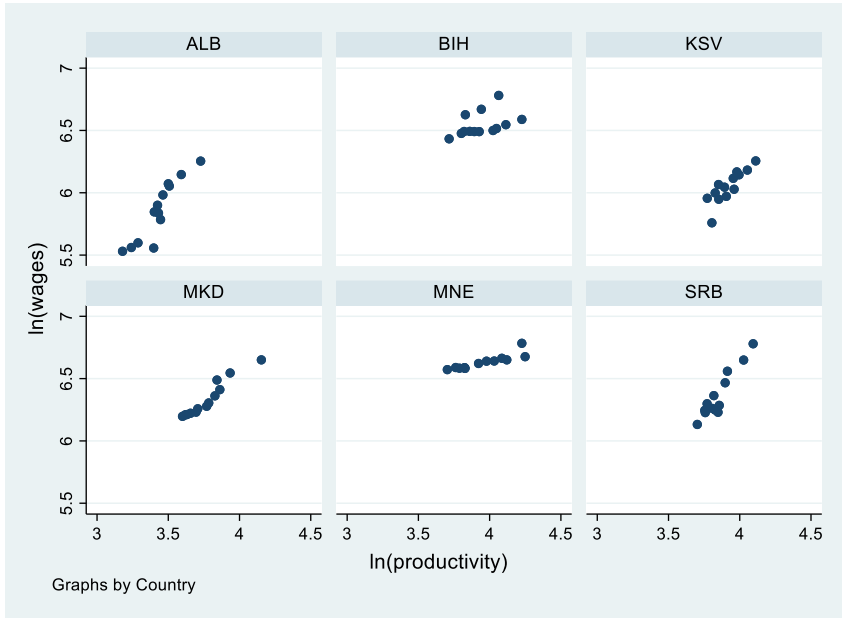


Figure 1: $\ln(\text{wages})$ vs $\ln(\text{productivity})$ by country (2010–2022). Source: Author's graphs.

Previous empirical analyses of intra-regional migration in the Western Balkans show that it accounts for about 15 % of the total migration stock.²⁷ In other words, intra-regional migration in the Western Balkans has been estimated as relatively limited compared to migration to OECD countries and is likely to remain so in the near future. According to the Balkan Public Barometer, more than a third of Western Balkan citizens would emigrate, but less than a tenth of prospective migrants would move to another Western Balkan country.²⁸ As mentioned above, intra-regional labour mobility can be assessed based on the number of work permits issued to Western Balkan citizens, statistics that are available from the National Employment Agencies. Figure 2 shows these figures for each Western Balkan economy during the period 2010–2022.

Almost two-thirds of the total number of work permits for Western Balkan citizens during the period under consideration are issued in Montenegro. This can be attributed to the high seasonal needs for skilled labour in the tourism and hospitality

²⁷ “Labour Migration in the Western Balkans.” OECD. 2022.

²⁸ “Balkan Barometer 2022. Public Opinion.” Regional Cooperation Council. June 2022. <https://www.rcc.int/download/docs/Balkan%20Barometer%202022%20-%20PO.pdf/21e2192c1d34cc6194ech029d7b5997f.pdf> (accessed 20 January 2026).

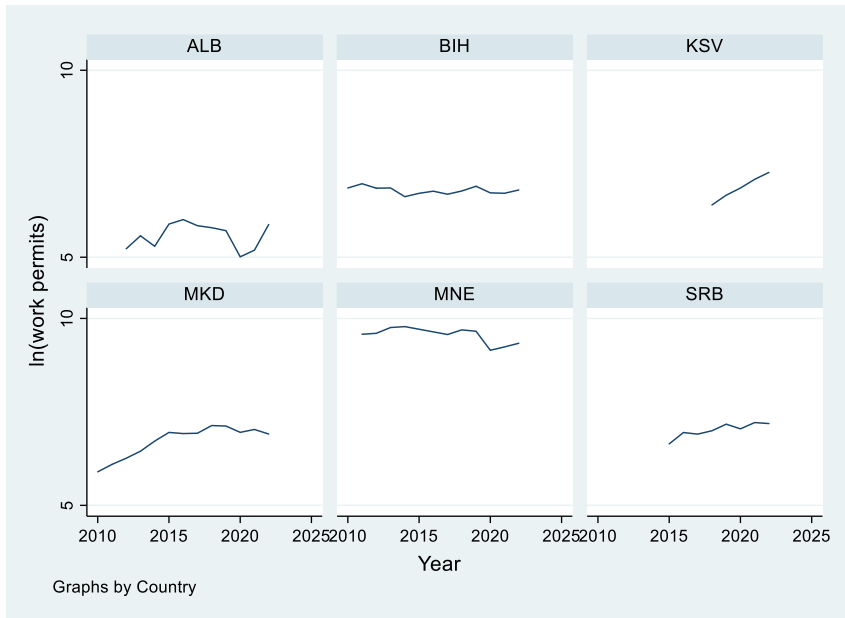


Figure 2: Number of work permits issued to WB citizens by country (2010–2022). Source: Author's graphs.

sector that cannot be satisfied by the domestic labour force. According to previous studies, mobility in the Western Balkan region is mainly seasonal, driven by employment in tourism, agriculture, and construction.²⁹

The estimation results are shown in Table 2, and the Stata outputs are presented in the online Appendix 3. The econometric analysis is based on a dynamic panel model estimated using the system GMM technique. Model 1 is the baseline specification with a one-year time lag for the dependent variable and labour productivity as an endogenous covariate, while Models 2, 3, and 4 include total employment and the number of work permits issued to Western Balkan citizens as exogenous variables. These two variables serve as proxies for workers' bargaining power and intra-regional labour mobility, respectively. All variables are expressed as log values and the estimated parameters will thus be interpreted as elasticity coefficients. The constant term is omitted in all four model specifications.

²⁹ "Labour Mobility as a Factor of Development in South-East Europe. Regional Overview." Regional Cooperation Council and International Organization for Migration (IOM). 2015. <https://publications.iom.int/books/labour-mobility-factor-development-south-east-europe> (accessed 20 January 2026).

Table 2: Estimation results using system GMM; $\ln(W)_t$ is the dependent variable.

Independent variable	Model 1	Model 2	Model 3	Model 4
$\ln(W)_{t-1}$	0.9098*** (0.000)	0.8726*** (0.000)	0.9038*** (0.000)	0.8469*** (0.000)
$\ln(PROD)_t$	0.1604*** (0.000)	0.1793*** (0.000)	0.1989*** (0.000)	0.2163*** (0.000)
$\ln(EMPL)_t$		0.0245*** (0.007)		0.0252** (0.037)
$\ln(WPERMITS)_t$			-0.0143** (0.038)	0.0032 (0.769)
Wald chi2	945463.35 (0.000)	978316.73 (0.000)	1.11e+06 (0.000)	1.11e+06 (0.000)

Source: Author's calculations, p-values are presented in parentheses. *p < 0.10; **p < 0.05; ***p < 0.01.

Table 2 shows strong wage inertia, as the elasticity coefficient of current wages with respect to one-year lagged wages is around 0.9 and is statistically significant. Labour productivity is a statistically significant determinant of gross monthly wages across all three specifications. For instance, the coefficient of elasticity of wages with respect to productivity in the first specification is 0.16. In addition, the impact of employment on wages is positive and statistically significant, with an elasticity coefficient of 0.0245. The elasticity of employment is considerably lower than that of productivity, which can be attributed to the weak bargaining power of the workers. Model 3 suggests that the number of work permits issued to Western Balkan citizens negatively and statistically significantly affects wages. However, the magnitude of this elasticity coefficient is negligible, since a 1% increase in the number of work permits is, on average, associated with a 0.0143% decrease in wages. In the last specification, both exogenous variables are included, along with the endogenous variable. In this model, the number of work permits issued is positively associated with wages, but this association is not statistically significant. These results are somewhat expected, given the sporadic nature of intra-regional labour mobility in the Western Balkans and the predominantly low-skilled composition of migrants. The Wald test assesses the joint significance of all model coefficients. In all model specifications, the p-values are less than 0.05, confirming the hypothesis that the explanatory variables significantly affect the dependent variable.

In light of certain drawbacks of the GMM estimation, such as a high number of instruments exceeding the number of observations and a small panel (N) relative to the time series (T), I further conduct a robustness check by running a pooled OLS regression. The estimation results are presented in Table 3, and the Stata outputs are in the online Appendix 4.

Table 3: OLS estimation of pooled regression; $\ln(W)_t$ is the dependent variable.

Independent variable	Model 1	Model 2	Model 3	Model 4
$\ln(W)_{t-1}$	0.9534*** (0.000)	0.9253*** (0.000)	0.9729*** (0.000)	0.9123*** (0.000)
$\ln(PROD)_t$	0.0866** (0.025)	0.1028*** (0.006)	0.0777* (0.069)	0.1011** (0.017)
$\ln(EMPL)_t$		0.0174*** (0.004)		0.0256** (0.012)
$\ln(WPERMITS)_t$			-0.0122** (0.031)	0.0052 (0.543)
Prob > F	(0.000)	(0.000)	(0.000)	(0.000)

Source: Author's calculations, p-values are presented in parentheses. *p < 0.10; **p < 0.05; ***p < 0.01.

According to the results presented in Table 3, the pooled regression yields the same conclusions about the sign and magnitude of the estimated coefficients, including their statistical significance. These findings show that labour productivity has the highest positive impact on wages, followed by employment. In Model 3, the number of work permits issued has a negative but weak impact on wages, while in the last specification, the estimated coefficient is positive and not statistically significant. In addition, the F-tests across all specifications indicate the overall significance of the estimated models.

Conclusions and Policy Recommendations

Over the last decade, the Western Balkan countries have implemented an increasing number of structural reforms to create a better investment climate, reduce unemployment, and improve living conditions for their citizens. Yet many development challenges remain, preventing these countries from closing the gap in living standards with the EU. This gap continues to drive the people of the Western Balkans to seek employment outside the region. At the same time, an increasing trend of regional cooperation can be observed, which is expected to encourage labour mobility within the region. The aim of this research is to estimate a wage determination model for the Western Balkans, including the impact of intra-regional labour mobility, to determine its nature and possible policy implications for future regional cooperation.

The econometric analysis suggests that labour productivity has a significant impact on gross monthly wages. This result favours the established hypothesis that wages depend on labour productivity, which, in turn, helps curb inflationary

pressures. In addition, the analysis reveals that employment has a significant, albeit small, positive impact on the average gross monthly wage. Finally, in one specification, I find a small negative impact of the number of issued work permits on wages, although, combined with other exogenous variables, the estimated coefficient is not statistically significant. These results reflect the current situation, where intra-regional labour mobility remains modest and mainly occurs in low-productivity sectors despite the increased efforts to promote regional cooperation. However, the “reversed decoupling” observed in the Western Balkans suggests that, beyond the variables considered in this research, other factors also influence wage growth. These factors need to be explored in detail, which represents a potential avenue for future research.

Intra-regional mobility is expected to increase significantly with the implementation of measures to remove administrative barriers within the framework of the Mini-Schengen and Open Balkan initiatives. Their official involvement in these initiatives can be seen as a signal that the region’s economies are willing to engage in more structural cooperation and demonstrate that they have left behind past disputes. However, there is still a lack of coordination between the Western Balkan countries, and this is something that impedes further integration. The mobility of the labour force within the Western Balkan region can be considered a mechanism for preventing brain drain and the permanent emigration of highly qualified labour to developed countries. For this purpose, the region needs measures for retaining skilled labour, including offering opportunities for business start-ups and career development schemes.

One of the most frequently cited effects of emigration on the source country is the easing of labour market pressure and a decrease in unemployment due to reduced labour supply. However, if emigration mostly occurs among workers with a specific profile and there is low substitution between workers across different labour market segments, then the expected beneficial effect of reduced unemployment will occur only in this segment, with unemployment in other segments remaining largely unchanged. On the other hand, besides reducing unemployment, emigration may cause substantial skills shortages in domestic labour markets. In this context, wage increases for certain occupations can be considered a sign of skills shortages. This indicator has an intuitive interpretation based on the assumption that wages work as an adjustment mechanism to achieve equilibrium in the labour market.

Generally good macroeconomic conditions are also an important prerequisite for greater intra-regional labour mobility. The monetary and fiscal policy mix should target price stability, particularly in the food and energy sectors, to minimise uncertainties and build a resilient future for citizens in the Western Balkan region. Price stability will significantly help maintain living standards by increasing purchasing power, thereby enhancing mobility within the region. Further, targeted

management of FDI can help create a strong and competitive private sector that valorises the returns of high-skilled emigrants, with fiscal incentives for entrepreneurship and investment to boost innovation, particularly in high-productivity sectors.

In addition, policy interventions are needed to improve regional cooperation and raise productivity levels. The region's governments should encourage joint ventures between entrepreneurs in the Western Balkans. This is particularly relevant for the high-productivity sectors in which the Western Balkan economies have competitive advantages. In this context, it is advisable to draw on the experience of developed EU countries in advanced and smart technologies. Regional economic development should be based on sharing experiences and best practices in digital and green transformation, as well as harnessing the potential of social entrepreneurship. Given their limited human resources, the Western Balkan economies would be well advised to share know-how and expertise to achieve their regional development goals. This will require further investment in human capital and an increasing supply of ICT professionals, resulting in young people working on the global market without having to migrate, and attracting more companies to invest in the region.

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Bionote

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