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Labor Markets, Migration, and EU Integration in the Western Balkans

Stephen Ayerst, Nina Chebotareva, Oksana Dynnikova,
Amanda Edwards, Charles Zhang

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Labor Markets, Migration, and EU Integration in the Western Balkans

Prepared by Stephen Ayerst, Nina Chebotareva, Oksana Dynnikova, Amanda Edwards, Charles Zhang*

Authorized for distribution by Annette Kyobe and Sebastian Sosa
October 2025

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ABSTRACT: This paper develops a structural model of interconnected European labor markets to examine how further EU integration would impact the Western Balkan economies and how policy can improve output and employment in these countries. Risks of increased emigration from further integration can be managed through promoting faster productivity growth, including through structural reforms. Model simulations show that productivity increases of 30 percent, similar to previous EU accession cases, would result in wage growth, help close the unemployment gap, and offset increased emigration through higher immigration and labor participation. Policies to improve the efficiency of the labor market (participation, job search, production) are essential to boost employment and support output.

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1. Introduction

Recent censuses in Western Balkan countries (e.g., North Macedonia 2021, Albania 2023, Kosovo 2024) have resulted in substantial downward revisions to population figures. These data revisions reflect high emigration rates, in particular to EU countries. Net emigration in the region creates economic challenges as it drains local labor resources and dampens growth.¹ As all six Western Balkan countries aspire to join the EU, future integration will require policymakers to manage the potential reductions in migration barriers and further increases in emigration. This leads to the following questions: (1) how do economic factors drive emigration in the Western Balkans? (2) how will further EU integration impact migration, population dynamics, and output? and (3) how can policymakers in the region support domestic labor markets and boost output in the context of highly interconnected economies?

These questions involve complex endogenous relationships between labor market outcomes requiring a systematic approach combining theory and data. The paper starts by documenting recent trends in Western Balkan labor markets and migration, focusing on dynamics and comparisons with the EU. The novel contribution of this paper is to employ a quantitative model of the European labor market and migration that describes how individuals move between inactivity, unemployment, and employment as well as migrate between countries. The model provides a lens to interpret the data and is used to simulate scenarios that capture the potential impact of further EU integration on Western Balkan countries and how policies could be designed to maximize the gains from increased EU integration.

While gaps remain, the Western Balkan countries have made substantial progress in closing gaps in labor participation and unemployment with the EU. The improvements in labor market indicators have occurred during a period of declining populations stemming primarily from high emigrations rates—although falling fertility has also contributed—implying that some of the progress may reflect emigration of unemployed or inactive individuals. Survey and empirical evidence indicate that migration tends to be driven, at least partially, by economic factors. Around half of Western Balkan migrants to the EU report having moved for employment. This is also supported by empirical evidence showing that bilateral migration flows tend to be higher when labor market gaps (e.g., wage gap, unemployment gap) between countries are large.

Further EU integration, including through eventual accession, could reduce migration barriers and further weigh on declining populations. To get a better view of the impact of EU integration, the paper examines productivity, labor market, and migration outcomes during previous EU accession cases. EU accession is important in this context for two reasons. First, all the Western Balkan countries are EU candidates, except Kosovo which is a potential candidate. Second, previous EU accession provides a valuable case study in understanding how increasing economic integration impacts labor market outcomes in closely interconnected countries. While the evidence is mixed, some countries experienced large increases in emigration around the time of EU accession and population declines.² On average, new member states also experienced improvements in labor market indicators around EU accession, driven by increasing labor productivity (e.g., Caliendo et al., 2021; Grassi, 2024; IMF, 2024) and reducing redundant labor (Zaiceva, 2014).

¹ See also Atoyan et al. (2016), Landesman and Mara (2016), Leitner (2021), OECD (2022), Li and Gade (2023).

² See also Kaczmarczyk and Okolski (2008).

To understand these interconnected trends, the paper employs a quantitative multi-country labor market model. Within countries, households decide whether to be inactive or to search for employment. Households are homogeneous, reflecting empirical evidence that the skill distributions of emigrants and domestic workers are similar in Western Balkan countries. Local labor markets are characterized by employment search and matching between households (both domestic and foreign) and job vacancies posted by firms (as in Mortensen and Pissarides, 1994). At the end of each period, households decide whether to remain in their current country or to relocate to a foreign country, weighing both preferences and economic condition in each country when making this decision.³ The model describes how bilateral migration flows across countries depend on endogenous local labor market conditions, such as labor market tightness (vacancies per unemployed worker) and wages, and on exogenous fundamentals that determine labor market dynamics (e.g., job separation rates, ease of finding a job), productivity, and migration costs. The model is calibrated to match labor market outcomes and migration patterns across 35 European countries, comprising the EU, Western Balkan countries, Türkiye, and Switzerland.

The calibrated model is used for two experiments. The first experiment simulates further EU integration in the Western Balkan countries. The experiment is motivated by previous literature documenting that EU accession boosted productivity in the new member states through structural reforms, lower trade barriers, and capital deepening (see, Caliendo et al., 2021; IMF, 2024). EU integration is simulated as lowering migration barriers between the Western Balkan countries and EU countries and raising productivity in the Western Balkan countries. The model is used to decompose the impact of lowering migration barriers and raising productivity. Two scenarios are constructed where in the first only migration costs are lowered and in the second migration costs are lowered and productivity is increased.

The experiment highlights the first main conclusion of the paper. Increasing productivity is necessary for the Western Balkan countries to maximize the benefits of EU integration and can more than offset negative impacts from higher emigration due to lower migration barriers. Without productivity gains, EU integration leads to further population declines as emigration increases, higher unemployment, and lower output per capita. Increasing productivity helps increase wages and job-finding rates reducing emigration, increasing immigration, and encouraging inactive households to enter the labor market. The model simulation shows that a 30 percent increase in labor productivity—consistent with past EU accession cases—would result in a 13 percent increase in wages, close most of the unemployment gap with the EU, and offset emigration with increased immigration and labor participation. Emigration remains higher than in the baseline economy, despite large wage increases and improved job-finding prospects. An implication is that attempting to directly counter emigration through financial incentives would require matching these large wage increases and, thus, would be exceedingly expensive and ineffective for policymakers to implement. The experiment highlights the importance of coupling EU integration with structural reforms that support productivity gains (in line with the conclusions of Atoyan et al., 2016). While some gains would likely follow EU integration—driven by lower trade barriers, greater supply chain integration, and financial deepening—the importance of productivity gains to offset emigration-related losses implies that further support from a robust structural reform agenda, including reforms required by the EU accession process, is necessary.

The second experiment simulates different policies aimed at boosting output and improving local labor market outcomes in the context of an interconnected European labor market. Implementation of these policies and

³ See related models by Artuc, Chaudhuri, and McLaren (2010), Caliendo et al. (2019), Caliendo et al. (2021), Chodorow-Reich and Wieland (2020), and Dix-Carneiro et al. (2023).

reforms would maximize the gains of EU accession for Western Balkan countries. Four sets of policies are considered: (i) structural reforms aimed at improving productivity, (ii) active labor market policies aimed at improving the matching efficiency between unemployed workers and hiring firms, (iii) policies aimed at supporting new job creation by either existing firms or entrants, and (iv) policies designed to increase the relative value of employment compared to inactivity. While there are quantitative differences, these four policies broadly impact the economy in a similar fashion, increasing output per capita and improving labor market indicators. The results highlight the second main conclusion of the paper. Policymakers have many options to support economic efficiency by reducing structural barriers to create positive pull factors to the domestic economy.

Outline. The paper proceeds as follows. Section 2 presents a stylized overview of labor markets, migration in the Western Balkans, and previous EU accession case studies. Section 3 discusses the model and calibration. Section 4 presents the quantitative results related to EU accession and policy simulations. Section 5 concludes.

2. Labor Markets and Migration Facts

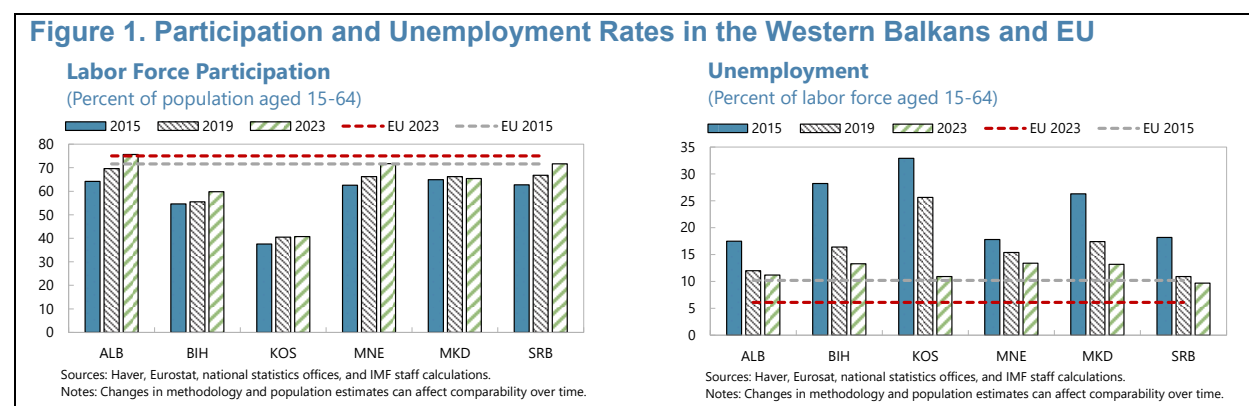
Labor markets in the Western Balkans have experienced rapid convergence with EU labor markets over the past decade, although large gaps persist. Underlying these gaps are structural barriers (e.g., high remittances, pervasive informality, poor educational outcomes) that may delay or inhibit further convergence. Convergence has coincided with a period of high emigration and declining populations that could become an obstacle to the future economic health of the region. This section presents an overview of labor markets and migration in the Western Balkan countries over the past 10 years and a comparison with the EU, providing context for the analysis in subsequent sections.⁴ The section also examines the relationships between economic factors and migration using survey-based and empirical evidence. The final part of the section provides a summary of economic dynamics of countries during previous EU enlargement rounds. While new member states generally improved economic outcomes, the wide range in outcomes cautions that policymakers may want to manage the transition.

2.1. Labor Market Trends in the Western Balkans

Labor participation in the Western Balkan countries remains substantially below the EU average (Figure 1, left chart), although most Western Balkan countries have made progress over the last ten years in closing the gap. As of 2023, labor participation of the working-age (15-64) population amounted to around 40 percent in Kosovo and between 60 to 75 percent in the other Western Balkan countries. Albania has managed to close the labor participation gap while Montenegro and Serbia have also managed to significantly reduce it. While Bosnia and Herzegovina has made progress, the gap remains substantial. On the other hand, progress in Kosovo and North Macedonia has stalled.⁵

⁴ A caveat with the following analysis is that populations (and related statistics) have been substantially revised following recent censuses. Albania (2023), North Macedonia (2021), and Kosovo (2024) censuses led to population revisions of over 10 percent. Montenegro (2023) and Serbia (2022) led to smaller revisions of +1 and -3 percent, respectively. Bosnia and Herzegovina's last census was conducted in 2013.

⁵ Both countries have yet to adjust labor market statistics following recent censuses.



Low labor participation rates have been accompanied by high unemployment rates in the Western Balkan countries (Figure 1, right chart). Compared to the EU average of around 6 percent, the 2023 unemployment rates range from around 10 percent in Albania, Kosovo, and Serbia to over 13 percent in the other countries. While substantially higher than in the EU, the gap has narrowed considerably over the past ten years, with the unemployment rate falling by as much as two thirds in Kosovo.

Figure 2 highlights several important structural factors that underlie the weak labor market outcomes in the Western Balkan countries. High remittances, which average 10 percent of GDP in Western Balkan countries, have been found to reduce poverty (Petereski et al., 2018; Duval and Francois-Charles, 2016) but also increase the reservation wage and reduce the need for households to join the labor market, particularly among young cohorts and women (Carare et al., 2024; Chami et al., 2018; Sousa and Garcia-Suaza, 2018).⁶ Among the Western Balkan countries, Kosovo has the highest remittances-to-GDP ratio and the lowest overall and women labor participation rates, as well as the highest NEET rate (share of young people neither in employment nor in education or training).

Western Balkan countries have larger gender gaps in labor participation rates (18.1 percentage points), employment rates (17.1 percentage points), and unemployment rates (2.4 percentage points) than the EU (around 9.6, 9.4, and 0.5 percentage points), although gender gaps have been declining, particularly in Albania, Kosovo, and Serbia. Policies such as gender-specific pension age increases in Albania, Montenegro and Serbia have partly contributed to increases in female labor participation among older age groups. Atoyan and Rahman (2017) associate the gender gaps in the Western Balkans with remittances, cultural factors, familial obligations, lack of childcare services (especially in rural areas), and educational attainment gaps.

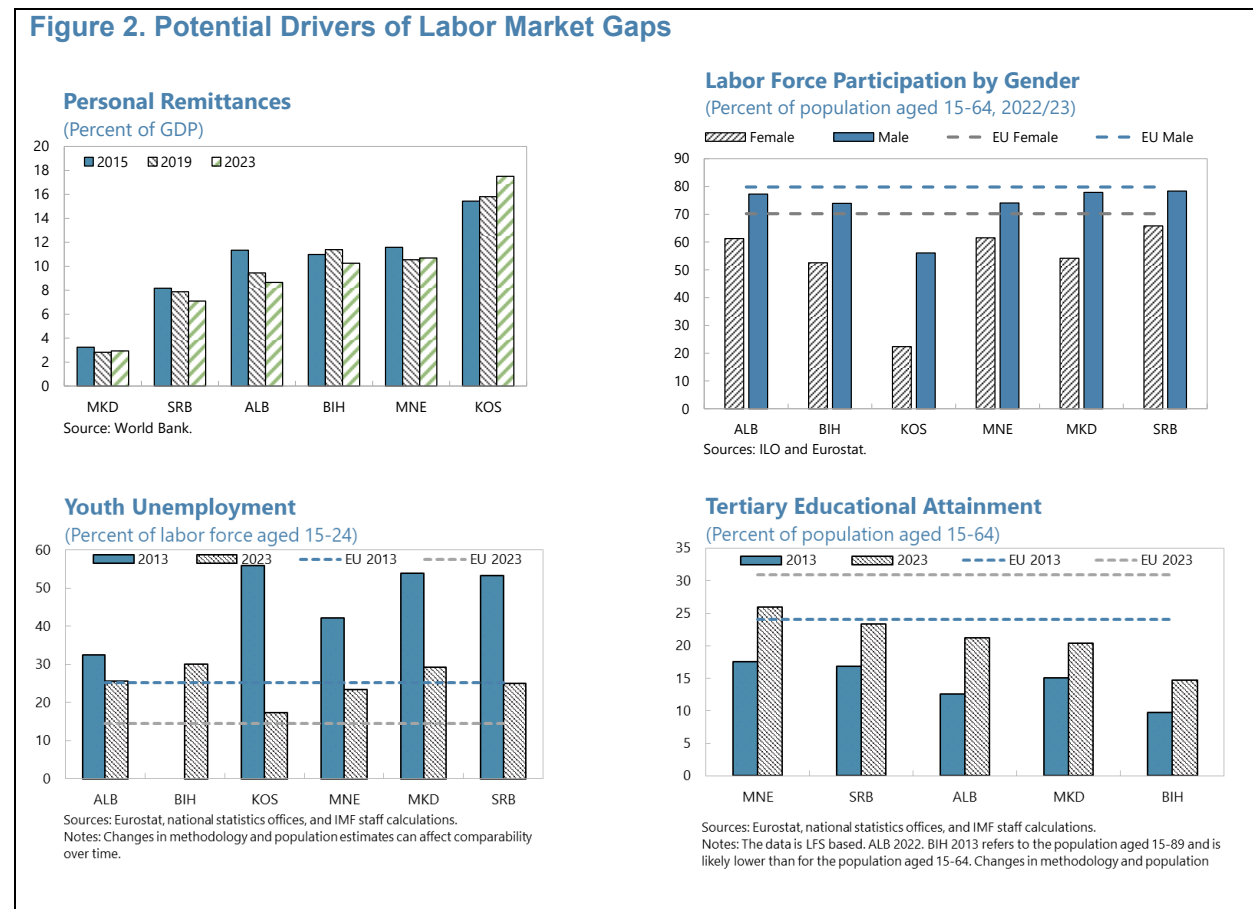
Western Balkan countries are younger and face higher youth unemployment than the EU. The average youth unemployment rate (15-24 age group) stood at 25.0 percent in 2023 compared with 14.5 percent in the EU. The NEET rate averages 23.7 percent, ranging from 15.9 percent in Serbia to 37.4 percent in Kosovo, compared to 11.1 percent in the EU.⁷ Western Balkan countries tend to have less educational attainment, with 21.1 percent of the working-age population having tertiary education—ranging from 25.9 percent in Montenegro to 14.7 percent in Bosnia and Herzegovina—compared with 30.9 percent in the EU. Regional business surveys, such as the World Bank's STEP Skills Measurement Program and Business Environment and Enterprise Performance (BEEP), and weak PISA results highlight issues in the educational systems' efficacy in

⁶ Remittances are difficult to measure, and official statistics may underreport.

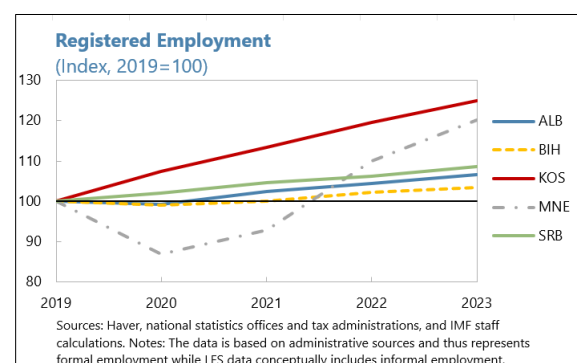
⁷ Regional Cooperation Council (2021).

closing skill gaps and mismatches. Finally, the prevalence of informality in the region—estimates range from 20 to over 50 percent of employment—likely weighs on labor market outcomes. Informality deters investment in the formal sector, which is associated with greater productivity and access to finance, and informal workers may face barriers in transitioning to formal employment.

Figure 2. Potential Drivers of Labor Market Gaps



Rising labor participation and falling unemployment in the Western Balkans have coincided with employment growth. Employment grew by around 20 percent over the past 10 years, compared with 10 percent in the EU (Labor Force Survey data). Employment growth has also coincided with increased formalization of the labor force (text figure). Registered employment remained relatively resilient during the pandemic except for Montenegro, where there was a large lockdown-driven drop in employment due to reduced tourism. In the post-pandemic period, registered employment growth has been strong, particularly in Kosovo amid economic growth and policy support for formalization, and in Montenegro amid strong growth supported by the 'Europe Now'

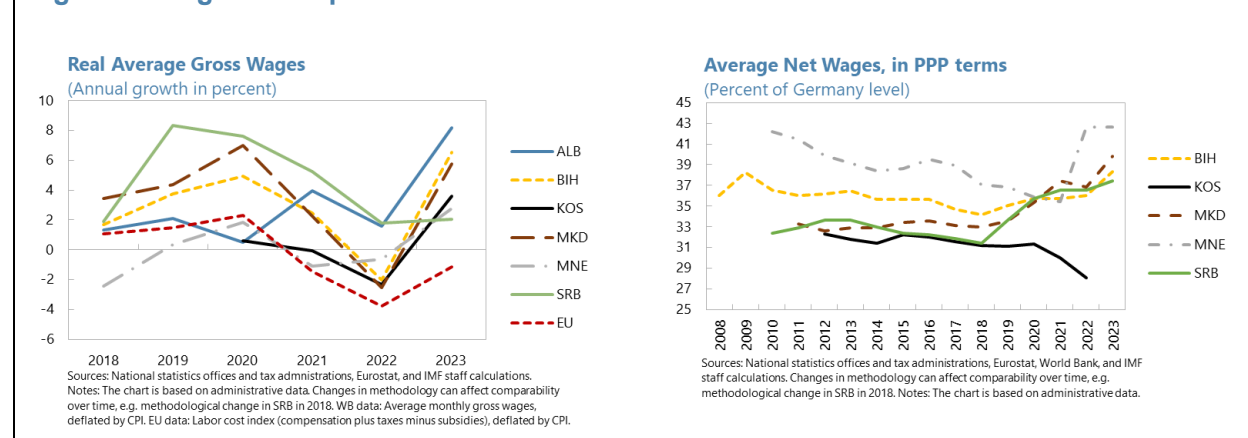


program and an influx of affluent immigrants from Russia and Ukraine.⁸

Despite rising employment and still high unemployment, there are signs of labor market tightness, with labor shortages becoming an important challenge in Western Balkan countries. Regional business surveys note that labor shortages have increasingly become an obstacle in recent years.⁹ Given relatively high levels of unemployment, labor shortages may relate to skills and geographic mismatches between unemployed workers and hiring firms. Strong emigration may have also contributed by reducing the local supply of skilled workers.

These labor market trends have also coincided with strong wage growth and convergence with advanced economies (Figure 3). Real wage growth has been higher than in the EU in most Western Balkan economies since before the pandemic. Albania saw a large increase in 2023 amid tight labor market conditions and public sector and minimum wage increases while inflation was comparatively low. Another steep increase in net wages occurred in Montenegro in 2022 following the abolition of mandatory health insurance contributions under the government's 'Europe Now' program, which was intended to reduce the labor wedge and incentivize formal employment growth. However, during the period of high inflation following the pandemic, real gross and net wage growth turned negative in several Western Balkan economies and the EU (Figure 3, left chart).

Figure 3: Wage Developments in the Western Balkans and EU



There are still sizable earnings gaps between the Western Balkans and the EU. Despite progress, real PPP-adjusted net wages are only around 30 to 40 percent of the level in Germany (Figure 3, right chart), one of the most popular destinations for migrants (Annex I). The wage gaps reflect, in part, lower productivity in the region. Between 2015 and 2023, average real wage growth outstripped productivity growth in four of the Western Balkan economies, except for Kosovo and Montenegro, amid steep increases in minimum and public sector wages and labor shortages (World Bank, 2024).

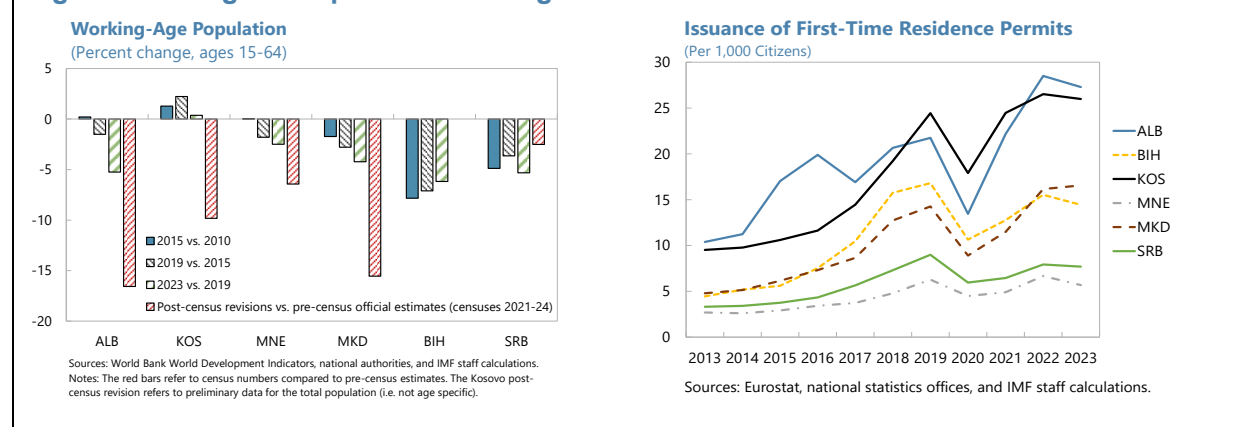
2.2. Migration and Demographics in the Western Balkans

⁸ The World Bank (2024) notes around 92,000 Ukrainian refugees in the Western Balkans as of 2023, with around two-thirds in Montenegro.

⁹ Regional Cooperation Council's Balkan Business Barometer (2023, 2024).

Amid higher labor participation and employment and lower unemployment rates, the working-age and total populations of Western Balkan countries have declined rapidly, driven, in large part, by increased emigration (Figure 4, left chart). From 2015 to 2023, the working-age population declined by more than 10 percent on average in Western Balkan countries compared to 2 percent in the EU. While there was a slowdown in Western Balkan emigration following the pandemic, the trend has resumed and mostly accelerated, reflected by the number of first-time residence permit issuances in the EU and Switzerland (Figure 4, right chart).

Figure 4. Change in Population and Migration

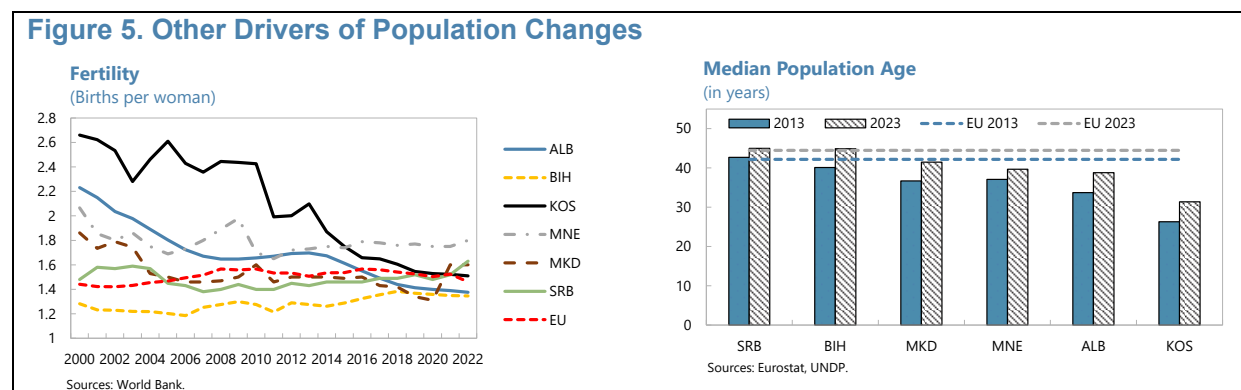


Part of the resurgence in emigration may be due to pandemic-related factors that led to a post-lockdown spike, such as individuals postponing migration decisions during the lockdown period. Another possible driver is that tight labor markets in advanced economies led to more amenable policy (see also discussion by Caselli et al., 2024). An important example is Germany's 'Westbalkanregelung' which has increasingly simplified the process for accessing the German labor market for Western Balkan citizens since the end of 2015 in an effort to counter labor market shortages.¹⁰ Germany tends to be the most popular destination for Western Balkan migrants, with Switzerland, Austria, and Italy being other popular destinations (Annex I).

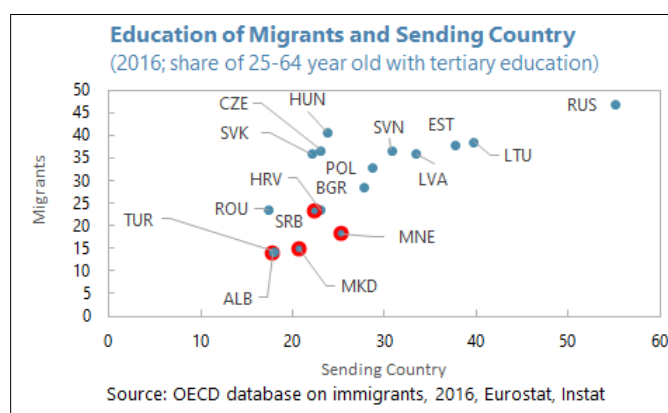
Based on Eurostat data, 70-80 percent of emigrants from Western Balkan countries are of working age, implying a dramatic impact of emigration on the population structure of these countries. Despite higher fertility, Western Balkan countries aged more than EU countries over the past decade (3.8 years versus 2.5 years).¹¹

¹⁰ The quota was set at 25,000 permits for the Western Balkans in 2021 and was doubled in June 2024.

¹¹ See also Population Projections of the Republic of North Macedonia by 2070 (SSO, 2023), published by the North Macedonian Statistics Office, highlighting similar population dynamics.



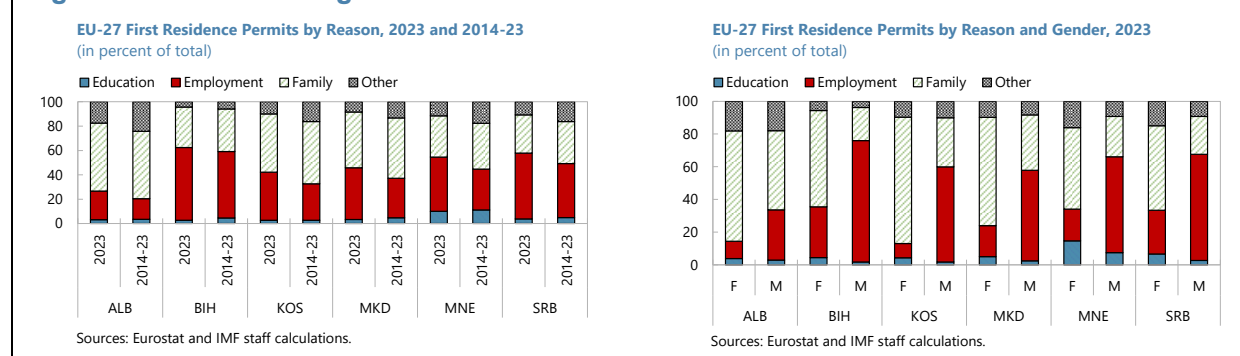
Emigration has historically been associated with brain drain, as skilled workers leave to find opportunities elsewhere. However, some indicators point to this becoming less of a factor in the Western Balkan countries (text figure). Migrants tend to be similar or less likely to have tertiary education than the sending-country population as a whole. This may reflect low migration costs from Western Balkan countries, high local demand for workers with higher education attainment, and/or foreign demand for migrants in occupations and fields with lower education requirements, such as construction, hospitality, retail trade, and other support services (e.g., OECD, 2022). Another potential factor is that the quality of Western Balkan school and university education ranks substantially below the EU (OECD, 2023; World Bank, 2024), which could limit labor market opportunities of more educated migrants. Consistent with this view, the over-qualification rates of Western Balkan migrants are relatively high, ranging between 35 and 60 percent (OECD, 2022).¹²



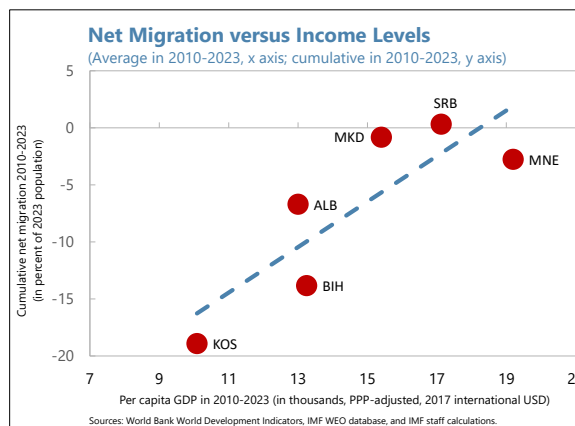
2.3. Do Economic Factors Drive Migration?

Migrants from the Western Balkans region report economic and family reasons as the primary motives for migration (Figure 6). Reasons for migrating vary across the six countries with employment listed as the primary reason by around 60 percent of migrants in Bosnia and Herzegovina but only around 20 percent in Albania. In all cases, employment has become a more important factor over the past decade. Reasons for migration also vary significantly by gender. Men are three or more times likely than women to report moving for employment, ranging from around 30 percent (around 10 percent for women) in Albania to almost 80 percent (around 30 percent for women) in Bosnia and Herzegovina. Women are more likely to list family reasons, with this being the main factor in all six countries. In an OECD (2022) survey, 79.5 percent of men and 78.3 percent of women respondents from the Western Balkans with current or past migration experience cited higher salaries as either very important or important in their migration decision.

¹² The over-qualification rate is defined as the share of workers with higher formal education than required for their job.

Figure 6. Reason for Migration

Net migration rates vary substantially across the region, with net migration being broadly neutral in Serbia to peaking at an average of around 1.5 percent per annum in Kosovo (right figure). The gaps in migration follow a well-documented pattern in which lower income countries tend to have larger losses from net migration (Atoyan et al., 2016). According to the migration transition hypothesis (Zelinsky, 1971; Gould, 1979; Berthiaume et al., 2021), emigration follows an inverted-U shaped pattern, suggesting that it first increases as countries move from low- to middle-income and subsequently declines as countries move to high-income levels. Households in the lowest income countries have the largest economic incentives to migrate as the wage differential is highest but households also tend to lack the economic means to travel to and become established in foreign countries. As countries become richer, the incentives to migrate decline while the means to migrate increase, implying that emigration tends to be highest in middle-income emerging economies, such as the Western Balkan countries, where the benefits are high, but costs are not too large of an obstacle.



Since survey-based evidence indicates that households migrate, in part, due to economic factors related to earnings, this should imply that bilateral migration should increase with labor market gaps between the destination and origin countries. To examine this systematically, the following regression is estimated:

$$\ln m_{ijt}/m_{iit} = \alpha \ln w_{jt}/w_{it} + \beta \ln \ell_{jt}/\ell_{it} + X_{ijt}\Gamma + \gamma_i + \gamma_j + \gamma_t + \epsilon_{ijt}$$

where m_{ijt}/m_{iit} is the migration share from origin country i to destination country j relative to the share of individuals that remain in the origin country, w_{jt}/w_{it} is the wage gap between the two countries (measured using net wages), ℓ_{jt}/ℓ_{it} is a measure of labor market gaps, X_{ijt} is a set of control variables, and γ_i , γ_j , and γ_t are origin, destination, and year fixed effects. Labor market gaps are measured using relative unemployment rates, vacancy rates, and labor market tightness (vacancies divided by unemployment). In addition to the economic outcomes, the above model is also re-estimated with a dummy variable that takes value one if both countries are in the EU and zero otherwise.

The results confirm the survey responses that households tend to move for economic opportunities. Households become more likely to move when the wage gap between countries is larger, where a one percent increase in the wage gap between a country pair correlates with an increase in migration by around 0.56 percent. The unemployment rate and labor market tightness gaps also show that households tend to move when it is more likely that they will find employment in the destination countries, although with tightness, this appears to be more correlated when wage gaps are high. The final column shows that EU-linked countries tend to have almost double the bilateral migration flows, all else equal.

The results are in line with Landesmann und Mara (2021), who find that wage gaps, wage changes, and labor market tightness are important determinants of Western Balkan migration to the EU-15. Beckers et al. (2024) find that individuals in Albania, Bosnia and Herzegovina, and Serbia are more likely to emigrate when there are labor shortages for the individuals' skill in the destination country.

Table 1. Determinants of Bilateral Migration Flows

	(1) log migrant gap	(2) log migrant gap	(3) log migrant gap	(4) log migrant gap	(5) log migrant gap	(6) log migrant gap
log wage gap	0.561*** (0.111)	0.246* (0.122)	1.259*** (0.243)	1.396*** (0.230)	1.131*** (0.222)	0.375** (0.122)
unemp rate gap		-0.0253*** (0.00408)	-0.0140* (0.00711)			-0.0250*** (0.00404)
vacancy rate gap			-0.0311 (0.0259)			
tightness gap				0.0187 (0.0357)	0.0324 (0.0345)	
log wage gap x tightness gap					0.476*** (0.0298)	
EU linked pair						0.723*** (0.0681)
log distance	-1.074*** (0.0238)	-1.084*** (0.0236)	-1.068*** (0.0285)	-1.068*** (0.0285)	-1.099*** (0.0276)	-1.072*** (0.0234)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin FE	Yes	Yes	Yes	Yes	Yes	Yes
Dest FE	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.783	0.784	0.813	0.812	0.825	0.788
Obs	6743	6647	3551	3551	3551	6647

Notes: See Annex II for data details. Data covers 1998 to 2019 for up to 35 EU and candidate countries (listed in Table 2). Distance (log distance) measures the log of the geographic distance between the most important city in each country and is taken from the CEPII dataset (Mayer and Zignago, 2011). EU linked pair takes value one if both countries are EU members and zero otherwise.

2.4. Lessons from Previous EU Accession Cases

The previous EU enlargement rounds provide valuable case studies to understand the impact of increased EU integration and to examine policies implemented by new member states. Annex III provides a more detailed discussion that is summarized here. The analysis provides a high-level comparison of these episodes of rapid EU integration that should not be taken as a causal analysis.

Comparing economic outcomes during previous EU accession cases highlights two results. First, the average new member state made gains in output per capita and labor market outcomes coupled with a slight decline in population. Emigration tended to accelerate around the time of accession, albeit with reversal in later periods, while immigration remained comparatively flat. Higher emigration was coupled with, on average, a moderate decline in population for new member states around the time of EU accession. Output per capita growth in the average new member state was around 5 percent in the years leading to and following EU accession. Output was also supported by an increase in the labor participation rate and a decline in the unemployment rate, potentially helped by emigration providing opportunities for unemployed or inactive workers to leave the market. This is consistent with IMF (2024)'s finding of strong labor productivity growth around EU accession due to increased total factor productivity and capital deepening.

Second, there was also large variation in outcomes across the new member states. While the average country saw an increase in the emigration rate and declining population, these trends were much stronger in some countries while other countries saw a decline in emigration and increase in population growth. Population growth ranged from around -1 percent to +1 percent in new member states in the periods around EU accession. Similarly, economic and labor market outcomes were widely varied across new member states, with some experiencing rapid expansions and others moderate contractions.

New member states implemented a range of policies to manage the post-accession transition and to improve economic outcomes. Annex Table III.1 provides a list of some policies implemented by new member states around the time of EU accessions and categorizes these policies into five main themes related to structural reforms, attracting new capital and labor, increasing return migration, facilitating investment of diaspora, and maintaining ties to diaspora. It is important to note that this list is meant to be indicative of potential policies, rather than being exhaustive, and that the policies may not be direct reactions to EU integration.

The next sections develop a quantitative model of EU labor markets and use the model to simulate EU integration and policies to boost output and support labor markets. A benefit of the model is that it can highlight where policies might help Western Balkan countries benefit most from further EU integration and manage potential risks.

3. A Structural Model of the European Labor Market with Migration

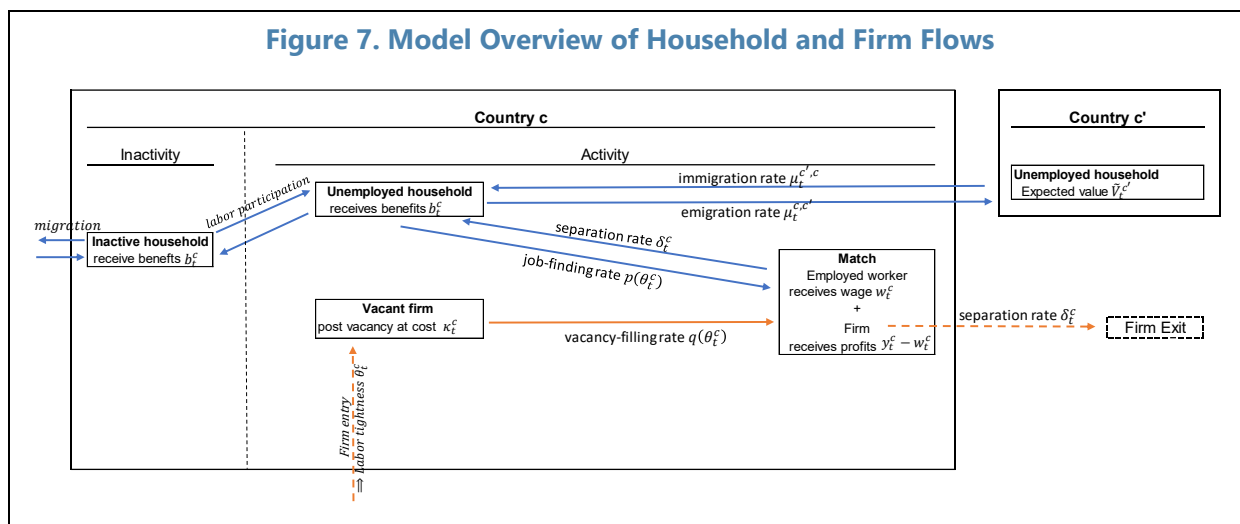
The previous sections highlight that the Western Balkan countries have been improving labor market outcomes amid population losses from high emigration. Further EU integration may amplify both trends, with improving productivity and market efficiency benefiting Western Balkan economies by supporting the labor market while lower migration costs and barriers harm the economy by further draining resources. These endogenous

outcomes require a model to understand interactions and what levers policymakers can pull to maximize positive outcomes and mitigate negative ones.

This section introduces a multi-country structural model of the European labor market with migration. The model is calibrated to match moments related to individual countries' labor market dynamics and migration. In the next section, the model is used to examine the potential impact of further EU integration and of policies designed to boost output and support the labor market in the Western Balkans.

3.1. Model Description

Building on Ayerst and Zhang (2025), the model characterizes the labor markets of multiple interconnected countries in which households transition between employment, unemployment, and inactivity and migrate between countries. The model characterizes the endogenous relationships that determine household decisions to enter the labor market and/or relocate to other countries as well as the factors that determine employment and unemployment transitions. Figure 7 provides an overview of the flows of households and firms in the model. A short description of the model is provided below, with a more detailed discussion in Annex IV.



The model incorporates three main blocks, described below. Country-specific parameters are indexed by a superscript c .

1. **Labor participation block.** Households choose to be active or inactive in the domestic labor market. Households pay a fixed cost $\bar{\tau}^c$ and idiosyncratic cost ϵ^c of entering the labor market, if currently inactive, or of becoming inactive, if currently active. Households enter the labor market as unemployed workers. Unemployed and inactive households receive income b^c , and are referred to as home production, which includes both direct (e.g., unemployment or retirement benefits) and indirect benefits (e.g., time for childcare). Inactive households may enter the labor market in future periods.
2. **Employment and unemployment block.** Unemployed workers and firm vacancies are matched through a search and matching process that follows Mortensen and Pissarides (1994). Unemployed households are matched with a firm at rate $p^c(\theta^c)$ in which case they become employed. On the other

side of the market, firms post vacancies at cost κ^c to be matched with a worker at rate $q^c(\theta^c)$. Both the job-finding and vacancy-filling rates depend on the endogenous local labor market tightness θ^c , which is the ratio of vacancies to unemployed workers. Matched firm-worker pairs produce output y^c and allocate revenues as wages and profits according to a Nash bargaining process until the match is (exogenously) destroyed at rate δ^c .

3. **Migration block.** Unemployed and inactive households may choose to relocate to different countries. Migrating households pay a common bilateral migration cost $\tau^{c,c'}$ and idiosyncratic cost $\epsilon^{c,c'}$ to move from origin country c to destination country c' .¹³

Households weigh both economic and non-economic factors when making decisions about whether to enter the labor market and where to migrate. Economic factors are captured by the value of being a worker in a country, which depends on the job finding rate, market wage rate, and the separation rate between workers and firms, as well as the option value of being able to move in the future. Non-economic factors are captured by the transition costs between inactivity and the migration costs between country pairs ($\bar{\tau}^c$ and ϵ^c for inactivity and $\tau^{c,c'}$ and $\epsilon^{c,c'}$ for migration in model terms), although both costs could also capture non-modeled economic factors (e.g., transport costs between countries). Both sets of costs have a common component ($\bar{\tau}^c$ and $\tau^{c,c'}$) that captures, on average, how difficult it is to transition and an idiosyncratic component (ϵ^c and $\epsilon^{c,c'}$) that captures variation in this difficulty across households. For example, the common migration cost could capture transportation costs, language or cultural barriers, or difficulties of foreigners finding work while the idiosyncratic migration cost could capture that households differ in their willingness to move, familial connections in the destination, or feelings of attachment to their home country.

The model predicts relationships between economic fundamentals and the dynamics of employment, unemployment, and bilateral migration. Locations with better economic fundamentals, reflected by lower employment frictions (higher matching efficiency, lower vacancy costs, lower separation rates) or higher productivity, will tend to have higher labor participation, lower unemployment, and attract more migrants. Country pairs with lower bilateral migration costs will also tend to have higher migration flows, all else equal. Idiosyncratic household preferences for being active in the labor market and/or locating in specific countries create supply curves of households willing to select into each country's labor market that depends on the country's relative economic fundamentals.

3.2. Model Estimation and Cross-Country Parameter Differences

The model parameters are chosen to match data on 35 European countries that includes 27 EU members, EU candidates and potential candidates, which include the six Western Balkan countries and Türkiye, and Switzerland (Table 2). Three EU candidate countries—Ukraine, Moldova, and Georgia—are dropped from the sample due to lack of data. Missing data is interpolated using economic relationships to increase coverage. For the most part, the EU countries and Switzerland have sufficient data for the calibration exercise (except Belgium, Greece, and Luxembourg) while the candidate countries and Kosovo require some amount of interpolation (except North Macedonia). Annex II provides further details on the data and interpolation.

¹³ This structure follows Artuc, Chaudhuri, MacLaren (2010), Chodorow-Reich and Wieland (2020), Caliendo et al. (2019, 2021), and Dix-Carneiro et al. (2023).

Table 2: Countries Included in the Quantitative Analysis

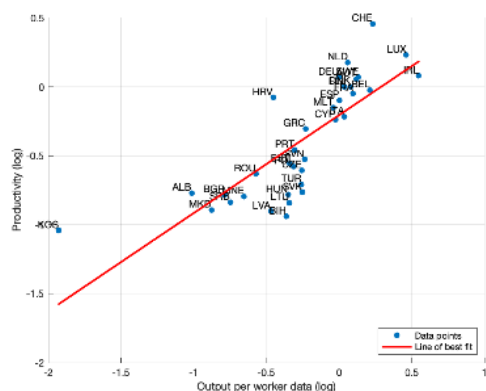
EU Countries	Candidate and potential candidate countries	Other
Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Spain, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Latvia, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden.	Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia, Türkiye.	Switzerland.

The model estimation produces country-specific estimates for five sets of parameters and country-pair-specific migration costs. The estimated parameter values are reported in Figure 8 against country-level output per capita from the data. While the five sets of parameters are estimated to jointly match the data moments, the parameters and associated moments are discussed below. Comparing with output per capita presents a systematic view of how parameter values differ with development. Differences in parameters can represent structural barriers to the economy that can be potentially closed by improving policies or economic efficiency.

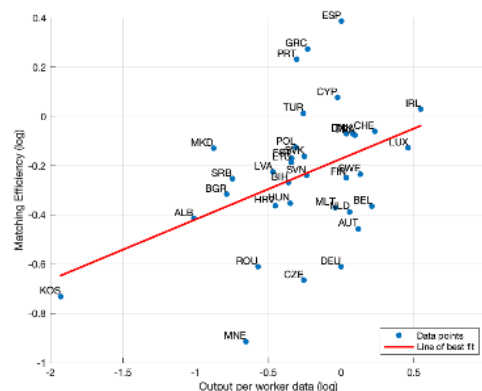
- The production of matched firms and workers y^c . Production y^c is closely related to the net wage rate paid to employees in each country since this parameter determines the revenues that firms and workers bargain over. Since wages tend to be highly correlated with labor productivity in the data, this implies that differences in production y^c also reflects differences in total factor productivity and/or capital intensity across countries. Production by matched firms and workers tends to vary positively with output per capita in the data indicating that, all else equal, employed workers in productive economies tend to produce more. It is also worthwhile noting that output per capita is not directly targeted in the calibration, only indirectly through the net wage, providing outside validation.
- The matching efficiency of unemployed workers and vacancies M^c . The matching efficiency M^c determines the rate at which unemployed workers are matched to a vacancy, all else equal. In the data, this parameter is closely related to the job finding rate of workers since the matching efficiency determines the transition of unemployed workers to employment at a given level of labor market tightness, which is the number of vacancies divided by the number of unemployed workers.
- The cost of posting vacancies κ^c . The vacancy cost κ^c determines the rate at which firms can post vacancies to try to match with unemployed workers. This could also be thought of as the entry cost for firms since firms need to find a worker before they can start to produce. In the data, the parameter is closely related to the labor market tightness since this reflects the number of vacancies that firms choose to post for a given level of unemployment.
- The scale of home production b^c . Home production b^c determines the benefits that inactive or unemployed households receive from not working. The parameter could be thought of as capturing direct benefits, such as unemployment or social welfare benefits paid by the government, and indirect benefits, such as more time for leisure, taking care of family members, or remittances received by households that reduce incentives or the need to participate in the labor market. In the data, this parameter is closely related to the flows of workers between inactivity and activity and between unemployment and employment because it determines the relative value of not being employed.
- The cost of transitioning from activity to inactivity $\bar{\tau}^c$ and vice versa. The transition cost $\bar{\tau}^c$ determines the cost paid by households to transition to and from inactivity. In the data, the parameter is closely

related to the flow of workers between inactivity and activity because it determines how large the gap in value between inactivity and activity needs to be for households to transition.

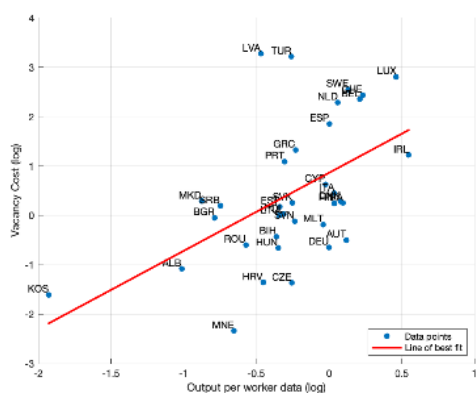
Figure 8. Model Parameters



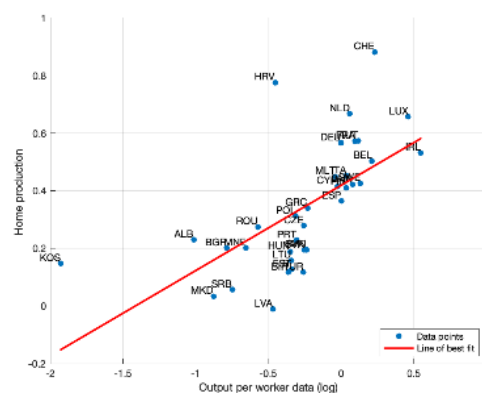
a) Production



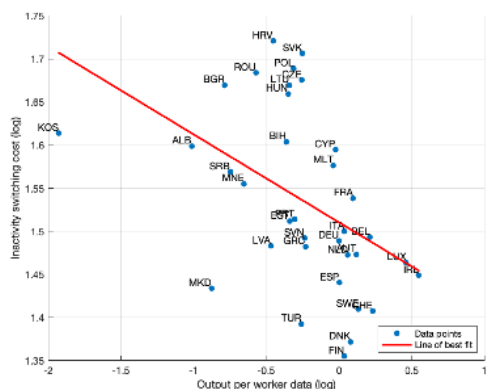
b) Matching efficiency



c) Vacancy cost

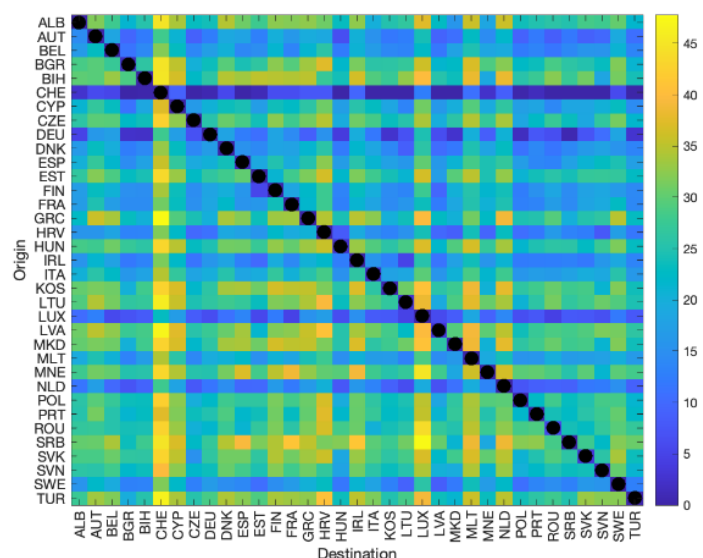
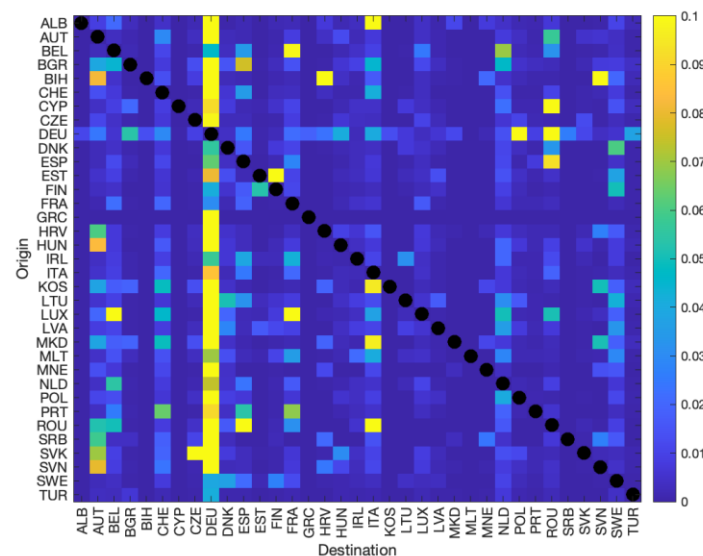


d) Home production



e) Inactivity Switching costs

Notes: The figures report the model parameter estimates for each country. The estimation process is described in Section 4.2 and Annex III.

Figure 9: Bilateral Migration Costs and Migration Rates**a) Estimated bilateral migration costs****b) Bilateral migration rates**

Notes: The figures report heatmaps for the estimated bilateral migration costs and flows between each combination of countries in the final dataset. Color scales are indicated on the right-hand side of the figure with warmer colors indicating larger values and cooler colors indicating smaller values. Figure a reports the migration costs in model units. Figure b reports bilateral migrant share of the origin country's population based on the calibrated model where values are top coded at 0.1 percent. The smallest migration cost is normalized to zero in Figure a. In both cases the diagonal shade does not correspond to a value. Section 4.2 and Annex III describe the estimation of the bilateral migration costs.

Higher income countries tend to be more productive with matched firms and workers, better at matching unemployed workers with vacancies, and have lower frictions for workers switching between inactivity and activity. Higher production and matching efficiency make it more beneficial for both workers and firms to enter the labor market as they are more likely to find a match and earn higher wages or profits once matched. These benefits are partially offset by higher vacancy costs that imply that firms find it more costly to post new

vacancies in more productive economies and higher home production that implies that households have higher opportunity costs to enter the market. Intuitively, vacancy costs may be more expensive in higher output-per-capita countries due to, for example, higher salaries of hiring committees or higher rent of unused production space. Higher home production could reflect higher opportunity costs of purchasing these goods and services in the market (e.g., family care costs).

Figure 9 reports the estimated migration costs and rates between each bilateral pair of countries in the final dataset. A couple of observations can be drawn from the figure. First, the choice of destinations tends to be skewed towards a few popular destinations. Popular destinations tend to be common for most countries while unpopular destinations tend not to be popular for any country. For example, Germany is a common destination for almost all the countries in the sample. Annex I provides more details on the specific destinations for the Western Balkan countries, with Germany, Switzerland, Italy, and Austria being among the most popular destinations. These trends could be potentially explained by some destination countries having more accommodating institutions for migrants or by migrant networks making some destinations easier to access. Additionally, many popular destination countries are larger economies that are more able to absorb new workers. Second, the estimated migration costs are not strongly correlated with migration rates. An important implication of this is that migration between country pairs is driven by economic factors, reflected in the data by the large wage gaps between Western Balkan countries and advanced economies (Section 2.1).

4. Quantitative Analysis: EU Integration and Policy Simulations

The quantitative model is used to simulate different scenarios for the Western Balkan economies. The first experiment examines the impact of further EU integration. The second experiment examines how different policies can be designed to support labor market outcomes and boost output.

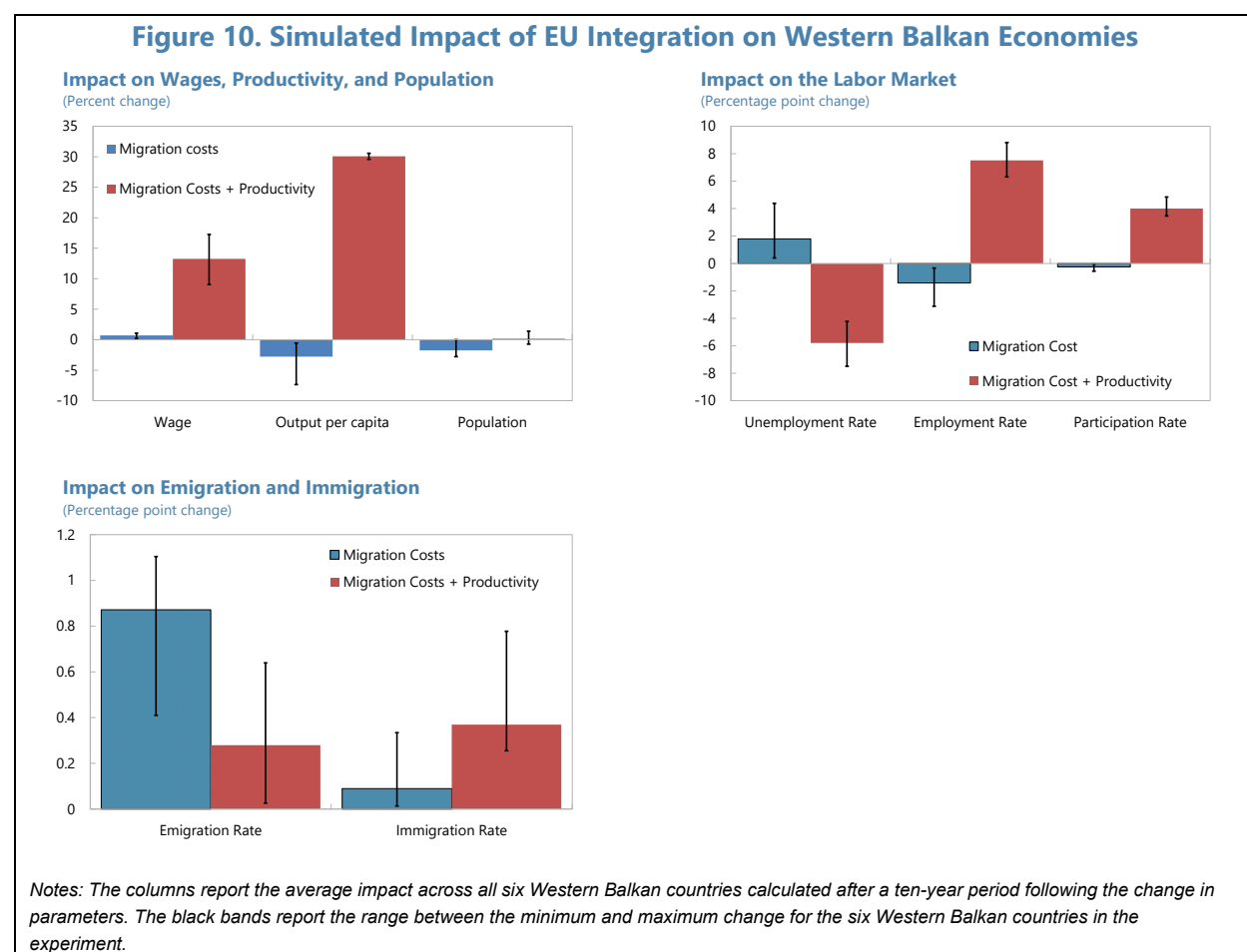
4.1. Increased EU Integration

The quantitative model is used to simulate further EU integration of the Western Balkan countries. The simulation is disciplined to a predicted EU accession of the Western Balkan countries, although other increased integration processes that do not entail EU accession would have qualitatively similar impacts. The empirical evidence in Sections 2 and other studies (e.g., Caliendo et al, 2021; IMF, 2024) find that EU accession tends to lead to both a decrease in the migration costs from new member countries and an increase in these countries' productivity. The decline in migration costs tends to be associated with lower regulatory or indirect barriers for migration across EU countries. The increase in productivity associated with the EU accession process has been linked with technological convergence, increased access to the EU Single Market (and related increases in economies of scale and foreign competition faced by local firms), higher participation in regional and global value chains, and higher FDI with all channels potentially stemming from the structural reform agenda required by new member states.

The potential economic costs of increased EU integration for the Western Balkan countries include increased emigration flows to the EU while higher productivity is the main potential economic benefit. Two scenarios are designed to understand these tradeoffs, disentangling how lower migration costs and higher productivity may impact Western Balkan economies.

- The first scenario assumes only lower migration costs from the Western Balkan countries to the EU, with productivity held constant. The decline in migration costs is calibrated to match a doubling of the emigration rate in each Western Balkan economy, consistent with the empirical evidence in Table 1 (Section 2.3), which corresponds to an average decline in migration costs by 6.1 percent. Rather than being a realistic scenario, as EU integration is likely to drive some productivity growth (e.g., through lower trade costs and/or financial deepening), the scenario illustrates the model mechanisms and the potential risks from weaker productivity growth and lower migration costs.
- The second scenario assumes a similar decline in migration costs but is also calibrated to an overall increase in output-per-capita of 30 percent, in line with evidence on the potential productivity benefits of EU integration found by IMF (2024). This is done by increasing the parameter that determines production of matched firm-worker pairs, by an average of 14.5 percent. This second scenario should be viewed as a more plausible scenario, matching closely the existing empirical evidence on the impact of EU accession, considering both the potential costs and benefits.

Figure 10 reports the impact of the parameter changes on key economic outcomes related to the overall conditions of the economy and the labor market, and migration.



Scenario 1: Integration with only lower migration costs, unchanged productivity. The reduction in migration costs alone leads to a negative economic impact. Households find it easier to move abroad resulting in a sharp jump in emigration rates. The increase in the outside option of workers leads to an increase in wages (around 0.7 percent on average), which in turn causes firm profits to fall and firms to post fewer vacancies, increasing the unemployment rate (around 1.8 percentage points on average). Despite higher wages, the lower job-finding probability, due to fewer vacancies, leads to labor participation being relatively flat and a lower employment rate (around 1.4 percentage points on average). The lower employment rate leads to output-per-capita declining by around 2.8 percentage points on average. Lower migration costs along with higher wages also make it more appealing to migrate to Western Balkan countries, increasing immigration but not by enough to offset the higher emigration, leading to a decline in total population.

Scenario 2: Integration with lower migration costs and higher productivity. The reduction of migration costs leads to an increase in emigration rates, but to a lesser extent than in Scenario 1 as the increase in productivity incentivizes households to remain in the Western Balkan countries. The increase in productivity offsets the negative impacts on economic and labor market conditions by increasing revenues of matched firm-workers, resulting in both higher wages and profits. Firms, in turn, increase vacancies posted per unemployed worker, leading to a lower unemployment rate (by 5.8 percentage points on average), higher employment rate (by almost 8 percentage points), and incentivizing households to enter the labor market, reflected in higher participation rates (by about 4 percentage points, on average). These pull factors counter the population loss by lowering emigration—as the relative value of emigration declines—and raising immigration (0.4 percentage points on average). The increase in employment and productivity lead to output per capita increasing by 30 percent, as targeted in the experiment parameterization.

Discussion. The simulations highlight the tradeoffs and dynamics of EU integration for the Western Balkan countries. The **first conclusion** of the experiments is that increasing productivity is necessary for Western Balkan economies to maximize the benefits of EU integration for output. In the absence of productivity gains, increased emigration can weigh on output per capita and employment. While productivity gains from lower trade costs and higher access to international capital markets should be expected, structural reforms that boost economic efficiency can also be crucial to help offset the adverse impact from higher emigration.

The **second conclusion** of the simulations is that strong productivity growth—as was typical in previous EU accession cases—helps offset the impact of increased emigration on employment. Even with strong productivity gains, emigration is still expected to increase following further EU integration, although to a lesser extent than in the case of constant productivity. The results show that—due to the lower costs of emigration—the emigration rate continues to increase (by over 0.2 percentage points) despite the predicted wage rate increasing by more than 10 percent. This implies that policies attempting to restrict potential emigrants or attract new or return migrants through financial incentives would be expensive and unlikely to be effective. Depending on the design of these policies, they may do more harm than good to the economy. In this regard, targeting pull factors that make the economy more attractive to potential migrants and workers—once again, robust implementation of structural reforms—is likely to be more effective. Along similar lines, Atoyan et al. (2016) highlights the importance of policies to strengthen institutions and policies and create a dynamic economic environment that encourages workers to remain and return migration. Some policies may prove effective at improving economic efficiency and reducing non-economic motives for migration, such as reforms aimed at improving the rule of law and tackling corruption. For example, Dimant et al. (2013) find that weak governance and corruption are particularly strong push factors for skilled migrants. The next set of experiments shows that policymakers have a range of options to support economic efficiency.

The two scenarios also shed light on why new member states may not experience population declines around the time of EU accession, as documented in Annex III and discussed in IMF (2024). While lower migration costs lead to an increase in emigration, EU accession has historically been accompanied also by a comparatively strong productivity growth (IMF, 2024), reducing incentives for emigration and increasing incentives for immigration, thus offsetting the population loss.

4.2. Simulation of Policies to Boost Output and Support the Labor Market

The previous experiments highlight the importance of productivity improvements to maximize the benefits of increased EU integration. EU integration can improve productivity, even without further policy action, through several channels, including access to cheaper intermediate inputs, access to a larger market for goods and services, increased competition for local firms, and higher foreign investment. Additionally, EU accession requires and supports the implementation of an ambitious structural reform agenda, which should help promote productivity and economic efficiency in EU candidate countries. The next experiment highlights more broadly how policymakers can boost productivity and output and support the labor market in the context of an interconnected European labor market.

The model is used to simulate several policies to promote labor market efficiency and increase output. Policies are divided into four broad categories discussed below, with examples of these policies presented in Table 4. To provide a quantitative measure of the elasticity, the parameters most closely associated with the policies are increased by 10 percent relative to the benchmark calibration (1 percent in the case of productivity) in each of the Western Balkan economies. The quantitative impacts of the policy reforms are roughly similar in terms of their quantitative impact. To put the magnitude of the reforms in perspective, the adjustment to productivity would close around 2 percent of the model-implied wage gap between the Western Balkan countries and EU and the adjustment to the matching efficiency would close around one-third of the model-implied gap between the Western Balkan countries and EU.

- *Productivity-boosting structural reforms.* This policy is implemented in the model by increasing the production of matched firms and workers by 1 percent. The policy increases both wages and firm profits, incentivizing firms to post more vacancies and more households to enter the market. In practice, these policies would include reforms associated with improving business efficiency, encouraging investment by incumbent and new firms, and increasing firm access to capital.¹⁴ These could also include indirect improvements that reduce the perceived costs of investing in the economy, such as judicial reforms to strengthen property rights or improvements in public infrastructure that reduce operational costs. This group of policies would also include measures to tackle informality as informal firms tend to be less productive, invest less, and hire fewer workers than formal firms.
- *Active-labor market policies.* These policies are implemented in the model by increasing the matching rate of unemployed workers and vacancies by 10 percent. These policies reduce the expected vacancies costs because firms are more likely to be matched with workers. These policies also make the labor market more attractive for inactive households because to the probability of finding a job increases. In practice, these policies would include any reforms and measures targeted at helping

¹⁴ See Ayerst and Laopraprassorn (IMF, 2024) for detailed discussion of these policies in North Macedonia.

unemployed workers find jobs, such as online job portals, on-the-job learning opportunities, apprenticeship programs, and codifications of skills.

- *Business promoting policies.* These policies are implemented in the model by decreasing firms' costs of posting a vacancy by 10 percent. Consequently, firms are willing to post more vacancies per unemployed workers, incentivizing households to enter the market as they are more likely to find a job. In practice, these policies would include any type of intervention that helps new firms enter the market and incumbent firms expand, such as digitalization of public services provided to firms and reducing unfair competitive practices of SOEs and informal firms.
- *Policies to boost labor participation.* These policies are implemented in the model by decreasing home production output, which increases the benefits of being employed relative to being unemployed or inactive.¹⁵ Higher benefits of employment encourage more households to enter the labor market. In practice, these policies would include any type of policies that facilitate participation in the labor market and/or increase the opportunity cost of staying inactive. An important type of these policies is related to addressing gender gaps, for example, measures to improve access to quality and affordable childcare that make it easier for mothers to enter the labor market.

Table 3. Potential Policies for Western Balkan Countries

Policy category	Example
Structural reforms to boost productivity	Strengthening the rule of law through judicial reforms, improving the business and investment environment, reducing bureaucratic hurdles, improving property rights, investing in infrastructure, improving access to credit and corporate bond markets, especially for small and young firms.
Active labor market policies	Implementing dual vocational and education training systems, supporting personalized job search, implementing youth training and apprenticeship programs, developing labor market information systems, integrating digital skills in education and training, improving recognition and codification of non-formal learning and credentials, improving matching of education and labor market needs (particularly for youths and women), increasing access to on-the-job and lifelong learning opportunities.
Business promoting policies	Establishing one-stop shops for business registration, reducing uncompetitive practices through tackling informality by removing tax incentives and SOE governance reforms, digitalizing public support, simplifying tax systems, increasing access for diaspora bonds for investments, improving public infrastructure.
Labor participation policies	Increasing access to affordable childcare and eldercare, implementing on-the-job training / reskilling programs, adjusting pension ages with improving life expectancy and equalization between men and women.

The results of the policy simulations are presented in Figure 11. The charts illustrate the outcomes of the four types of policy across eight economic variables related to productivity, the labor market, and migration. All

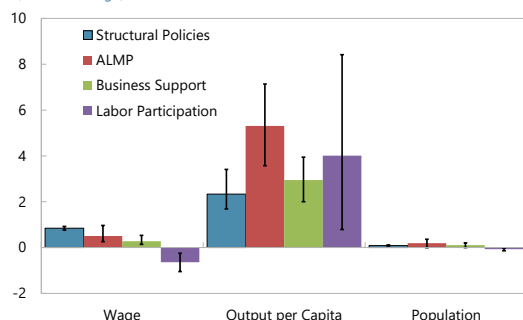
¹⁵ A caveat with this implementation is that it lowers the benefits of remaining in the domestic economy since even active workers expect to spend some amount of time in unemployment.

outcomes are reported as changes relative to the benchmark calibration values. For brevity, the average impact is reported as a column with the range of impacts reported as a vertical line.

Figure 11. Simulated Impact of Policies on Western Balkan Economies

Impact on Wages, Productivity, and Population

(Percent change)



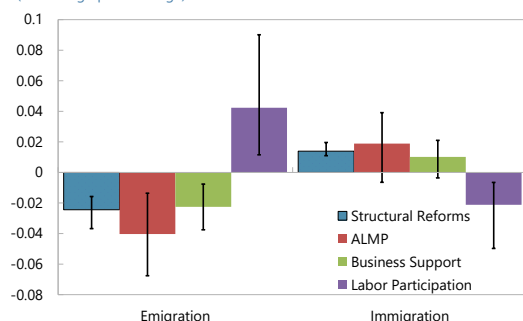
Impact on the Labor Market

(Percentage point change)



Impact on Migration

(Percentage point change)



Notes: The columns report the average impact across all six Western Balkan countries calculated after a ten-year period following the change in parameters. The black bands report the range between the minimum and maximum change for the six Western Balkan countries in the experiment.

The simulated policies produce broadly similar outcomes in terms of output per capita, labor participation, employment, and unemployment, as well as emigration and immigration. The exception is policies targeting labor participation, which have a negative impact on wages and increase net emigration due to lower home production reducing households' outside option. In general, the selected policies encourage households to enter the labor market and facilitate the matching between firms and unemployed workers. As a result, labor participation and employment increases, unemployment falls, and wages increase (except in the case of labor participation policies). These outcomes also tend to make the economy a more attractive destination, reducing net emigration. The implementation of all policies results in higher output per capita.

The experiment highlights the set of measures and reforms available for policymakers to support the labor market and boost output. In connection with the previous experiment, the results also highlight that there is not a singular dimension that policies should target to gain the largest benefits from EU integration.

Before concluding, it is useful to discuss policies that are not considered in these experiments. Section 2.4 highlights that post EU accession, many new member states in the previous enlargement round implemented policies to attract new migrants and/or return migrants. The analysis highlights how migration between two

countries depends on the relative labor market conditions. Importantly, the Western Balkan countries' wage rate is around one third of the value in advanced economies implying that it would be expensive to close this gap to lower emigration. Instead, the experiment focuses on policies that could create pull factors into the domestic labor market. Similarly, Atoyan (2016) advocates for a policy approach in the CESEE region to deal with emigration by improving institutions and policies to increase pull factors and better use the remaining workforce while managing negative impacts from emigration. Other policies implemented by the previous new member states relate to attracting capital from and building relations with diaspora. These policies are outside of the scope of the current model but would be useful for future analysis.

5. Conclusions

The Western Balkan countries have made substantial progress over the past decade in closing labor market gaps with the EU, notably labor participation and unemployment rates, and increasing output per capita. However, this progress has occurred in the context of shrinking populations due to high emigration, as has been highlighted in recent population censuses. High emigration could be a major headwind for future growth of these economies and could be potentially exacerbated by further EU integration, including through EU accession.

Analysis of these issues calls for a systematic approach combining comparable cross-country data and theory to understand the driving interconnected and endogenous factors. This paper employs a quantitative multi-country labor market model to this end. The model is used to simulate two sets of experiments. In the first experiment, further EU integration is simulated to mirror the productivity increase and migration cost decrease in previous EU accession countries. The experiment highlights the importance of increasing productivity during EU integration to maximize the benefits from integration. The second experiment highlights that improving the efficiency of various stages of the labor market (e.g., production, employing workers, encouraging participation) can boost output and support labor market outcomes in integrated regional economies.

The model and experiments highlight important lessons for policymakers.¹⁶ First, EU integration should be supported by productivity-enhancing structural reforms domestically. EU integration alone may increase productivity by providing countries with greater access to intermediate trade, supply chains, and financial integration. That said, the importance of productivity growth to maximize benefits of EU integration and counter potential negatives from higher emigration, calls for well-planned and ambitious reforms. Quantitatively, increasing labor productivity in the Western Balkan countries by 30 percent—the average of previous EU accession cases—would increase wages by around 13 percent, close most of the unemployment gap, and lead to almost no increase in net migration while lower increases in labor productivity risk higher unemployment and a greater loss in population from higher net migration. Second, policymakers should focus on low-cost, high-return policies that improve the attractiveness of working in the local economy. The second experiment highlights that policies aimed at various stages of the labor market have broadly similar impacts on increasing employment, labor participation, and output per capita. In this regard, any type of policies that make working in

¹⁶ Similar policy priorities for improving productivity are outlined in: the [2025 Republic of North Macedonia Article IV Consultation Staff Report](#); the [2025 Republic of Kosovo Fourth Reviews Under the Stand-By Arrangement and the Arrangement Under the Resilience and Sustainability Facility Staff Report](#); and the [2025 Republic of Serbia Article IV Consultation, First Review Under the Policy Coordination Instrument, and Request for Modification of Targets Staff Report](#). For country-specific analysis of labor markets and migration, see the IMF Selected Issues Papers on [Kosovo](#) (Ayerst, 2025) and [North Macedonia](#) (Ayerst and Kovachevska Stefanova, 2025).

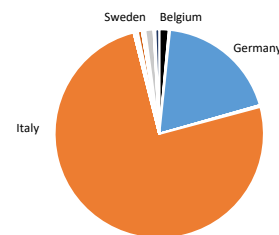
the local economy more attractive are likely to achieve similar goals. In contrast, policies aimed at disincentivizing emigration or incentivizing immigration are not directly considered, but unlikely to prove effective as the model-implied wages necessary to offset the increase in net migration are quantitatively large.

The paper is a step in developing a systematic approach to analyzing labor market outcomes in closely integrated economies. That said, the analysis necessarily abstracts from important factors to the Western Balkan countries that may be usefully studied in future work. First, remittances play an important role in the Western Balkan economies. Remittances and FDI from diaspora remain key growth engines and may lessen the potential costs of emigration. Diaspora ties often weaken over time, suggesting that countries should pursue integration and implement structural reforms that help reduce reliance on remittances (Roldan, 2021). Higher remittances should also be taken with some caution as remittances tend to primarily increase consumption and real estate investment, rather than investment in productive capacity (OECD, 2022), and may act as an obstacle for long-term growth reforms (Fullenkamp, 2008). Second, the Western Balkan countries face large obstacles from the informal sector. Informality creates barriers (e.g., through unfair competitive practices) for investment by formal firms and can constrain human capital accumulation and economic mobility of workers (e.g., as informal firms have less incentive to train workers and may stigmatize future employment). Actions should be taken to reduce informality, including by reducing bureaucratic barriers to firm entry in the formal market (such as through one-stop shops to business registration and digital public services), removing tax incentives for informality, and improving access to public services.

Annex I. Destination Countries

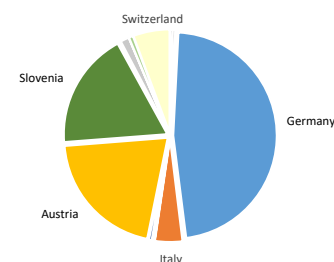
Albania. Albania's diaspora is largely based in Italy, Greece, and increasingly in Germany. It is important to note that Greece data not included in Eurostat. Over 70 percent of Albanians abroad are of working age and about 53 percent of the working age migrants are male.

Albania citizens in EEA, 2023



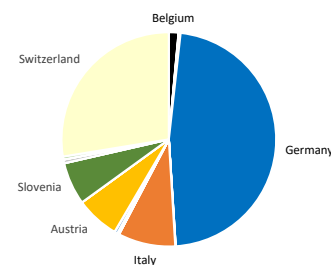
Bosnia and Herzegovina. Bosnia and Herzegovina's citizens who are resident in the EEA are mostly based in Germany, Austria, and increasingly in Slovenia. Switzerland data is only available until 2021 in Eurostat. About 76 percent are of working age, of which 57 percent are males (60 percent in 2013).

Bosnia and Herzegovina citizens in EEA, 2023



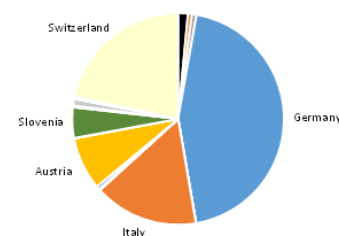
Kosovo. Kosovo's citizens who are resident in the EEA are mostly based in Germany, Italy, Austria, and increasingly in Slovenia. Switzerland data only until 2021 in Eurostat. About 75 percent are of working age, of which 55 percent are males.

Kosovo citizens in EEA, 2023

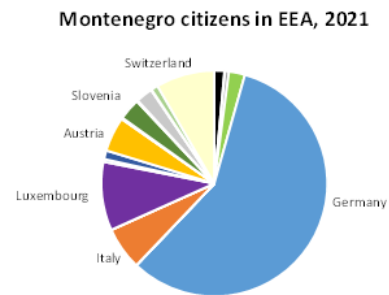


North Macedonia. Citizens of North Macedonia who are resident in the EEA are mostly based in Germany, Switzerland, Italy, and Austria. About 74 percent are of working age, of which 52 percent are males (53.7 percent in 2012).

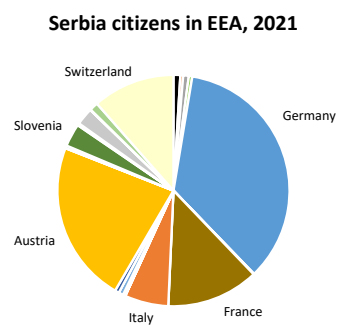
North Macedonia citizens in EEA, 2023



Montenegro. Citizens of Montenegro who are resident in the EEA are mostly based in Germany, Luxembourg, Switzerland, Italy, and Austria. About 76 percent are of working age, of which 55 percent are males (52 percent in 2012).



Serbia. Citizens of Serbia who are resident in the EEA are mostly based in Germany, Austria, Switzerland, France, and Italy. About 65 percent are of working age, of which 52 percent are males.



Annex II. Data Details

Data limitations

Global migration data is prone to incompleteness, as migrants often fail to de-register when moving abroad, and due to differences in registration criteria across countries. Official statistics therefore often underestimate emigration in particular, while census cycles tend to be lengthy. The analysis uses receiving country information from Eurostat in an effort to overcome this. Since this data also relies on national population registers that use data on residents by country of birth and citizenship, naturalization and citizenship based on *jus sanguinis* result in shortcomings of migrant estimates.

Construction of data used for regression and quantitative analysis

This annex describes the construction of the dataset used for the analysis in Table 1 and Sections 4 and 5. Other data sources are directly described in the figures, tables, and text.

The final dataset contains 35 countries that are described in Table 3 in the main text. Empirical results are based on available data over 1998 to 2019. Calibration targets average available data over the 2010 to 2019 period. Not all variables are available for all country-years and so data is interpolated (as described below) for missing observations for the model calibration.

Output per capita. The data is taken from the Penn World Tables v10.0, other than for Kosovo, which is taken from the state statistical office.

Net wages. The calibration targets wage data to discipline the economic benefits of being employed in a given country. Given that the focus is on economic incentives to migrate, purchasing power standard net wages are more appropriate than gross wages, which captures economic factors but may miss differences in taxation. Data is taken from OECD, other than for Kosovo, Bosnia and Herzegovina, North Macedonia, and Montenegro, which are taken from their state statistics office.

Data is missing for the countries Austria, Bulgaria, Cyprus, Croatia, Malta, and Romania. Gross wage data is used as the primary proxy to fill in missing net wage data. Log net wages are regressed on log gross wages and log output per worker including country and year fixed effects to construct an average coefficient between gross and net wages that are used for the conversion for the missing countries.

Unemployment rates. The data is taken from Eurostat employment and unemployment (Labour Force Survey) database.

Vacancy rates. The data is taken from Eurostat job vacancy statistics database.

Data is missing for Bosnia and Herzegovina, Kosovo, Serbia, and Türkiye. Missing data is imputed by as the predicted value from regressing the log of labor market tightness (vacancy per unemployment) on the log of output per worker and a fixed effect for the year.

Labor market flows. The data is taken from Eurostat which provide annual transitions between employment, unemployment, and inactivity. The model calibration requires a moment on the transition from employment to unemployment, inactivity to activity, and activity to inactivity. The first moment is directly observed. The second and third are constructed taking activity as the weighted sum of employment and unemployment flows to and from inactivity.

Data is missing for Albania, Belgium, Bosnia and Herzegovina, Greece, Kosovo, Luxembourg, and Montenegro. Missing data is constructed as the predicted value from regressing the log of the transition rate on the log of labor market tightness, the log of the gross wage rate, and the log output per worker, as well as a year fixed effect. The intuition of the inference is that the labor market tightness and wage rate contain information on the countries labor market conditions relative to the level of productivity and development, which is captured by output per capita while the year fixed effect captures time-varying factors such as global business cycles.

Bilateral migration flows. Bilateral migration data for most countries is taken from the Eurostat migration and migrant population statistics database which provides the number of migrants living in an origin country that migrate to a destination country. This maps closely to the model concept of migration.¹⁷ For Germany, bilateral migration data for immigration and emigration is taken from the SSO as the Eurostat data does not cover Germany over the relevant period.

All countries are missing some data but not all data. Data coverage tends to be relatively poor for Albania, Bosnia and Herzegovina, Cyprus, Greece, Kosovo, Hungary, Luxembourg, Latvia, Malta, Poland, Portugal, Serbia, Spain, and Türkiye. Missing data is constructed using a gravity relationship—similar to described in Section 2.2—that regresses log relative migration on the log wage gap, log distance, other factors that may impact migration (e.g., common language, common border, whether both countries are EU members) and origin, destination, and year fixed effects, where these variables are available.

¹⁷ Other Eurostat datasets have information on the cumulative and flow of individuals living in a destination country that were born or have citizenship from an origin country.

Annex III. Previous EU Accession Cases

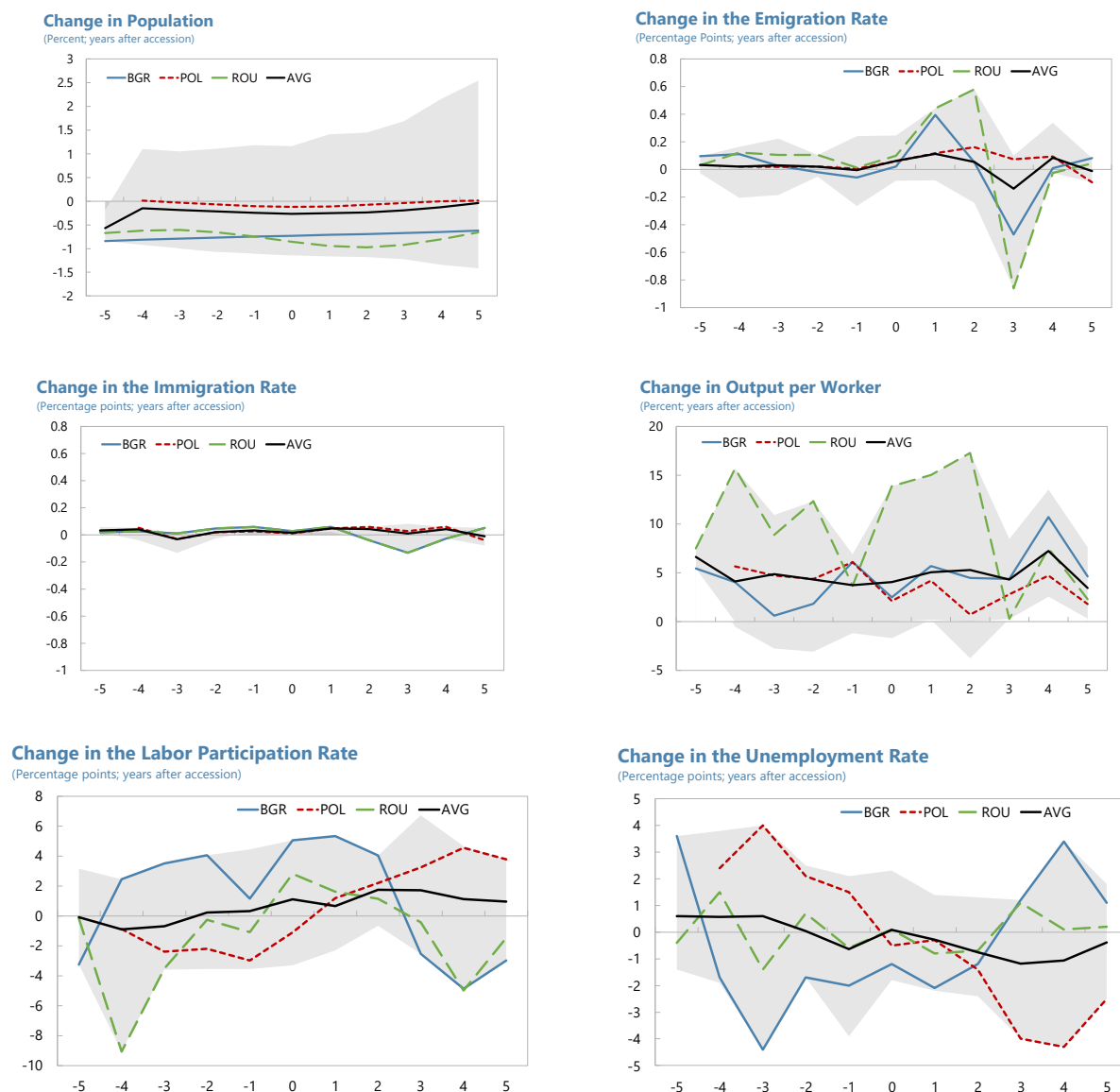
This Annex Section provides additional details on economic dynamics and policies implemented by new member states during the previous EU enlargement rounds. The data shows that while the typical new member state experienced improvements in economic outcomes around EU accession, there was substantial variation across individual countries. Additionally, country implemented a wide range of policies around the time of EU accession.

III.1. Economic Outcomes in Previous EU Accession Cases

Figure III.1 reports the demographic and labor market outcomes of EU new member states around EU accession. It shows the range of outcomes, the average, and three example countries (Bulgaria, Poland, and Romania)

Around EU accession, the average new member state saw only a relatively small population decline. Emigration tended to accelerate around the time of accession, albeit with some reversal in later periods, while immigration remained flat. For the average new member state, output per capita grew at around 5 percent in the years leading to and following EU accession. Output was also supported by an increase in the labor participation rate and a decline in the unemployment rate, potentially helped by the emigration providing opportunities for unemployed or inactive workers to leave the market.

Finally, it is useful to discuss the limitations of the analysis. EU accession is an endogenous process and so the relationships should not be taken as causal. IMF (2024) use a synthetic difference-in-difference strategy to try to control for selection with observable factors. Additionally, EU accession itself is a long process, as countries make a series of reforms and are granted certain benefits in working closely with the EU, that makes linking the process to a single date difficult. In this regard, while outcomes are related to the date of EU accession, these outcomes are likely to have long pre-accession trends. Another important note is that there is large variance in the range of outcomes and so the experience of individual countries may differ drastically from the average.

Figure III.1. Previous EU Accession Case Studies

III.2. Policies in Previous New Member States

New member states implemented a range of policies to manage the post-accession transition and to improve economic outcomes. In many cases, it is difficult to point to whether specific policies were direct responses to negative pressures created by accession, associated with reform recommendations required by new member

states, or unrelated to these issues altogether. That said, Table III.2 provides a, non-exhaustive, list of policies implemented by new member states around the time of accession and categorizes these into five main themes along with examples of these policies including specific policies implemented by new member states.

In addition to country-specific policies, new and old member states implemented several regional policies to mitigate abrupt migration and labor market impacts. This included transitional agreements restricting the free movement of labor for up to seven years post-accession (Kahanec and Ulceluse, 2023) via quotas, complex application processes, proof of suitability and work permit requirements (Bender and Ulceluse, 2022). The EU Cohesion Policy has also provided support to less developed member states to accelerate convergence, which could help manage the transition.

Table III.1. Examples of Post-EU Integration Policies

Policy Theme	Examples
Domestic economic reforms	Active labor market policies (including training, placements and apprenticeships, employment services and subsidies); financial sector reforms; anti-corruption policies; judicial reforms; infrastructure investment; market liberalization; start-up support; digitalization.
Policies to attract new talent and investment	Talent visa programs; Patent boxes; increasing and extending duration of work permits for non-EU migrants (e.g., Croatia “Action Plan for Integration”); tax incentives (e.g., Poland “Polish Deal”); investment programs (e.g., Hungary “Hungarian Investment Promotion Agency”); digitalization of migrant services (e.g., Estonia “E-residency” and “Digital Nomad Visa”; Lithuania “Work in Lithuania”).
Return migration incentives	Tax incentives (e.g., Poland “Return to Poland”; Portugal “Programa Regressar”); business grants (e.g., Romania “Diaspora Start-Up”); relocation support (e.g., Hungary “Come home, young person!”; Estonia “Talents back home!”); reintegration efforts (e.g., Bulgaria “Tuk-Tam” and “Back2Bg”); relocation portals (e.g., Poland “Powroty”); diaspora scholarships; work experience programs (e.g., Lithuania “Bring Together Lithuania” program); information on local opportunities (e.g., one-stop shops); recognition of qualifications.
Remittance and diaspora investment policies	Reducing transfer costs including through SEPA; financial products; partnerships with financial institutions; investment incentives (e.g., Czech Republic “Investment Incentives Act”; Bulgaria “InvestBulgaria Agency”).
Maintaining cultural and knowledge ties with diaspora	Diaspora institutions (e.g., Romania “Institute for Romanian Abroad”); language and education (e.g., Estonia “Compatriots Program”; Bulgaria state-funded Bulgarian Sunday school; Croatia “Central State Office for Croats Abroad” and “Croatian Unity through Knowledge Fund”; Greece “Greek Diaspora Fellowship Programme”); diaspora outreach (Hungary “Körösi Programme”); dual citizenship.

Many of the policies in the first theme include the structural reforms that are typically implemented to boost productivity. Some of these policies were used specifically to address opportunities and manage risks associated with the post-EU accession transition. For example, Poland implemented Active Labor Market Policies in the post-accession period to manage the transition. In terms of specific policies, the government

financed employment related costs (travel, furnishing, social insurance contributions), offered training, including on-the-job opportunities, and offered public works programs to reduce risk of scarring during unemployment. While programs differed in effectiveness, the basket of programs were successful in dropping the unemployment rate (Wisniewski and Maksim, 2013).

The other four categories focus on areas that are associated with managing specific aspects of migration stemming from increased integration. The second theme captures policies designed to bring in new resources, either labor or capital, in response to the lower barriers and increased appeal of migrating to or investing in the domestic economy following accession. This would include policies targeting either EU citizens or non-EU citizens that might find new member states to be an easier access point to the EU.

The third theme captures policies designed to increase return migration of local nationals. These policies either provide some element of a financial benefit to returning home to leverage skills gathered abroad (e.g., business grants) or target potential barriers to return migration (e.g., information on local jobs). The fourth theme focuses on facilitating remittances and investments from the diaspora through providing financial benefits or removing potential barriers. The fifth policy theme captures policies that focus on maintaining ties with diaspora but are not directly related with incentivizing investment or return migration, although studies show that migrant networks foster trade and FDI (Burchardi, et al., 2016; Cohen et al, 2017; Javorcik et al., 2011).

Annex IV. Model Description

This annex section describes the setup, equilibrium, and calibration of the model used for the analysis in Section 4 and 5. The model is based on Ayerst and Zhang (2025).

Economic Environment

Economic setting. Time is discrete and indexed by $t \in 0, 1, 2 \dots$. The economy consists of countries $\mathcal{C} = \{1, 2, \dots, C\}$ that are populated by $N_{c,t}$ households. Upon receiving an i.i.d. taste shock $\epsilon_t^{c'}$ to the value of living in each location, households search for employment in their current market or choose to relocate and search for employment in foreign markets.

Microstructure of the labor market. Labor markets are organized into country-specific submarkets in which vacant firms and unemployed workers randomly search. The number of successful matches within a submarket is given by a matching function $M(U_t^c, V_t^c) = M_t^c (U_t^c)^\alpha (V_t^c)^{1-\alpha}$, where U_t^c and V_t^c denote numbers of unemployed workers and job vacancies respectively. Let $\theta_t^c = V_t^c / U_t^c$ denote the labor market tightness, the probability of an unemployed worker finding a job can be expressed as $p(\theta_t^c) = M(U_t^c, V_t^c) / U_t^c$. Similarly, we denote the probability that a vacancy is filled as $q(\theta_t^c) = M(U_t^c, V_t^c) / V_t^c$. Once a match is formed, worker and firm engage in Nash Bargaining to determine the wage rate. Following Chodorow-Reich and Wieland (2020), we assume that workers don't leave their current jobs for unemployment, either in the domestic or a foreign market. This implies that a match is maintained until its exogenous destruction at the rate δ .

Timing. There are three stages within each period. The value functions described in the sections below are written at the end of the second stage.

I. **Search phase.** Each period, excluding the initial one, commences with a group of workers who are unemployed from the preceding period, due to either separations within the same submarket or migrations from other submarkets. Additionally, there are an exogenous number of newly unemployed entrants, as well as some deaths among the current workforce. Firms observe numbers of unemployed workers in each market and choose to post V_t^c numbers of job vacancies. Household search within their current submarket for a job and are matched with probability $p(\theta_t^c)$. Workers and firms bargain over wages.

II. **Production and match destruction phase.** Each matched firm-worker pair produces output y_t^c . After production, matches are destroyed with probability δ_t^c .

III. **Relocation phase.** Unemployed workers draw an idiosyncratic preferences $\epsilon_t^{c'}$ over each country-sector c' and choose whether to relocate. When a worker relocates from the original labor market c to the destination labor market c' , she is subject to a permanent migration cost $\tau^{c,c'}$. Additionally, migrant workers enter new labor markets as unemployed.

Model Equilibrium

Worker's problem. Workers are risk neutral and infinitely lived and can be either employed or unemployed. We denote the value of each state as $V_t^{\omega,c}$, for $\omega \in \{U, W\}$. Unemployed workers choose where to relocate at the end of the period. The value of unemployment at period t is given by:

$$V_t^{U,c} = b_t^c + \beta E \left[\max_{c'} [\tilde{V}_{t+1}^{U,c} - \tau^{c,c'} + v\epsilon_t^{c'}] \right],$$

b_{at} denotes home production. Moreover, $\tilde{V}_{t+1}^{U,c}$ denotes the value of being unemployed going into the search phase in period $t + 1$. This value is given by:

$$\tilde{V}_{t+1}^c = p(\theta_{t+1}^c) V_{t+1}^{W,c} + (1 - p(\theta_{t+1}^c)) V_{t+1}^{U,c}.$$

Lastly, the value of employment is given by:

$$V_t^{W,c} = w_t^c + \beta(1 - \delta^c) V_{t+1}^{W,c} + \beta \delta E \left[\max_{c'} [\tilde{V}_{t+1}^{U,c} - \tau^{c,c'} + v\epsilon_t^{c'}] \right],$$

moreover, given that $\epsilon_t^{c'}$ is drawn from a Type-I Extreme Value distribution, the continuation of search for employment in other labor markets $E \left[\max_{c'} [\tilde{V}_{t+1}^{U,c} - \tau^{c,c'} + v\epsilon_t^{c'}] \right]$ will have a closed-form solution:

$$E \left[\max_{c'} [\tilde{V}_{t+1}^{U,c} - \tau^{c,c'} + v\epsilon_t^{c'}] \right] \equiv \Phi_t^c = v \left[\log \sum_{c'} (\exp\{\tilde{V}_t^{c'} - \tau^{c,c'}\})^{\frac{1}{v}} \right].$$

Firm's problem. The firm's problem follows the standard Diamond-Mortensen-Pissarides (DMP) model. A firm can either be vacant and searching for an employee or matched with a worker, where we denote the value of the types as $V_t^{J,c}$ and V_t^V . The value of a vacant firm is characterized by:

$$V_t^V = \max_c -\kappa_t^c + q(\theta_{t+1}^c) [V_{t+1}^{J,c} - V_{t+1}^V],$$

κ represents the vacancy posting cost. Moreover, the free-entry condition implies that $V_t^V = 0$ in the equilibrium. Firm's value of being matched with a worker is given by:

$$V_t^{J,c} = y_t^c - w_t^c + \beta[(1 - \delta_t^c) V_{t+1}^{J,c} + \delta_t^c V_{t+1}^V].$$

Wage bargaining. Workers and firms engage in Nash Bargaining solving:

$$\max_{w_t^c} (V_t^{J,c}(w_t^c))^{1-\eta} (V_t^{W,c}(w_t^c) - V_t^{U,c})^\eta.$$

The outcome of the bargaining implies $(V_t^{W,c}(w_t^c) - V_t^{U,c})^\eta = V_t^{J,c}(w_t^c) (1 - \eta)$.

Labor market dynamics. Let $\mu_t^{c,c'}$ denote the migration flow from submarket c to c' for a worker at time t . Then, the evolution of employment can be expressed as:

$$E_{t+1}^c = (1 - \delta_t^c) E_t^c + p(\theta_t^c) \sum_{c'} \mu_t^{c',c} (U_t^{c'} + \delta_t^{c'} E_t^{c'} + B_t^{c'} - D_t^{c'}).$$

$B_t^{c'}$ and $D_t^{c'}$ denote birth and death respectively. Similarly, the evolution of unemployment becomes:

$$U_{t+1}^c = (1 - p(\theta_t^c)) \sum_{c'} \mu_t^{c',c} (U_t^{c'} + \delta_t^{c'} E_t^{c'} + B_t^{c'} - D_t^{c'}).$$

Lastly, given that $\epsilon_t^{c'}$ is drawn from a Type-I Extreme Value distribution, the migration flows can be derived as:

$$\tau_t^{c,c'} = \frac{\exp(\tilde{V}_t^c - \tau_t^{c,c'})^{1/\nu}}{\sum_c \exp(\tilde{V}_t^c - \tau_t^{c,c'})^{1/\nu}}.$$

Equilibrium definition. A stationary equilibrium consists of the following values:

$$\{w_t^c, \theta_t^c, U_t^c, E_t^c, \tau_t^{J,c}, \tau_t^{V,c}, \tau_t^{W,c}, \tau_t^{c,c'}, y_t^c\}$$

Such that: (i) worker values $V_t^{U,c}, \tau_t^{J,c}, \tau_t^{V,c}, \tau_t^{W,c}$ solve the workers problems; (ii) firms enter if optimal, satisfying the free-entry condition and setting θ_t^c ; (iii) wages w_t^c in each submarket are determined through Nash bargaining; (iv) unemployed workers choose a submarket to search for work, determining $\mu_t^{c,c'}$; (v) the mass of unemployed workers U_t^c and employed workers E_t^c evolves according to the law of motions. (vi) the goods market clears.

Model Calibration

To understand the labor market impacts resulting from EU accession better, we have calibrated the model to align with data from European Union and Western Balkan countries. Some parameters are set according to the existing literature, and others are calibrated internally. Table I in Annex II lists out all the model parameters.

Externally calibrated parameters: $\{\alpha, \eta, \nu, \beta\}$, which are matching function elasticity, bargaining power, the scale of the Extreme Value distribution, and the time discounting factor. These parameters are set to fixed values corresponding to the existing literature.

Internally calibrated parameters: Some parameters are not observed, and we calibrate them internally to match the data moments. These parameters are $\{y_t^c, \kappa_t^c, M_t^c, b_t^c, \bar{\tau}_t^c, \tilde{V}_t^c\}$, which represents productivity, vacancy posting cost, matching function efficiency, home production value, migration cost and the outside search option for workers. To see it more clearly, the data moments used can be expressed by parameters as:

$$\text{Wage: } w_t^c = \eta y_t^c + (1 - \eta)(1 - \beta(1 - \tau_t^c))b_t^c + \beta(1 - \beta)(1 - \tau_t^c)(1 - \eta)\Phi_{t+1}^{c,A}.$$

$$\text{Labor market tightness: } \theta_t^c = \left(\frac{M_t^c}{\kappa_t^c} \frac{y_t^c - w_t^c}{1 - \beta(1 - \tau_t^c)} \right)^{\frac{1}{\alpha}}.$$

$$\text{Job finding probability: } \bar{p}_t^c = M_t^c (\theta_t^c)^{1-\alpha}.$$

$$\text{Flow into inactivity: } \mu_t^{c,A,c,J} = \frac{\exp(b_t^c + \beta\Phi_{t+1}^c - \bar{\tau}_t^c)^{\frac{1}{\nu}}}{\exp(\Phi_{t+1}^{c,A})^{\frac{1}{\nu}}}.$$

$$\text{Flow out of inactivity: } \mu_t^{c,J,c,A} = \frac{\exp(\tilde{V}_t^{c,A} - \bar{\tau}_t^c)^{1/\nu}}{\exp(\Phi_{t+1}^{c,J})^{1/\nu}}.$$

$$\text{Outflow rate: } \mu_t^{cS,-cS} = \frac{\exp(\tilde{V}_t^c)^{\frac{1}{\nu}}}{\exp(\Phi_{t+1}^{c,A})^{\frac{1}{\nu}}}.$$

It follows from the above expressions that given Φ_{t+1}^c , the wage rate will pin down productivity. The labor market tightness will pin down vacancy post. The job finding probability will pin down the matching efficiency, and the inactivity rate will pin down the home production.

Once the other parameters are determined, the migration costs can be backed out as

$$\tau_t^{c,c'} = -\nu \log \left[\frac{\mu_t^{c,c'}}{\mu_t^{c,c}} \times \frac{\exp(\tilde{V}_t^c)^{1/\nu}}{\exp(\tilde{V}_t^{c'})^{1/\nu}} \right].$$

Comparison of the model and data moments. Figure III.1 reports the moments used for the calibration of the model parameters in both the model and data. In all cases, the model is able to replicate the data moments.

Figure IV.1. Comparison of Calibration Moments

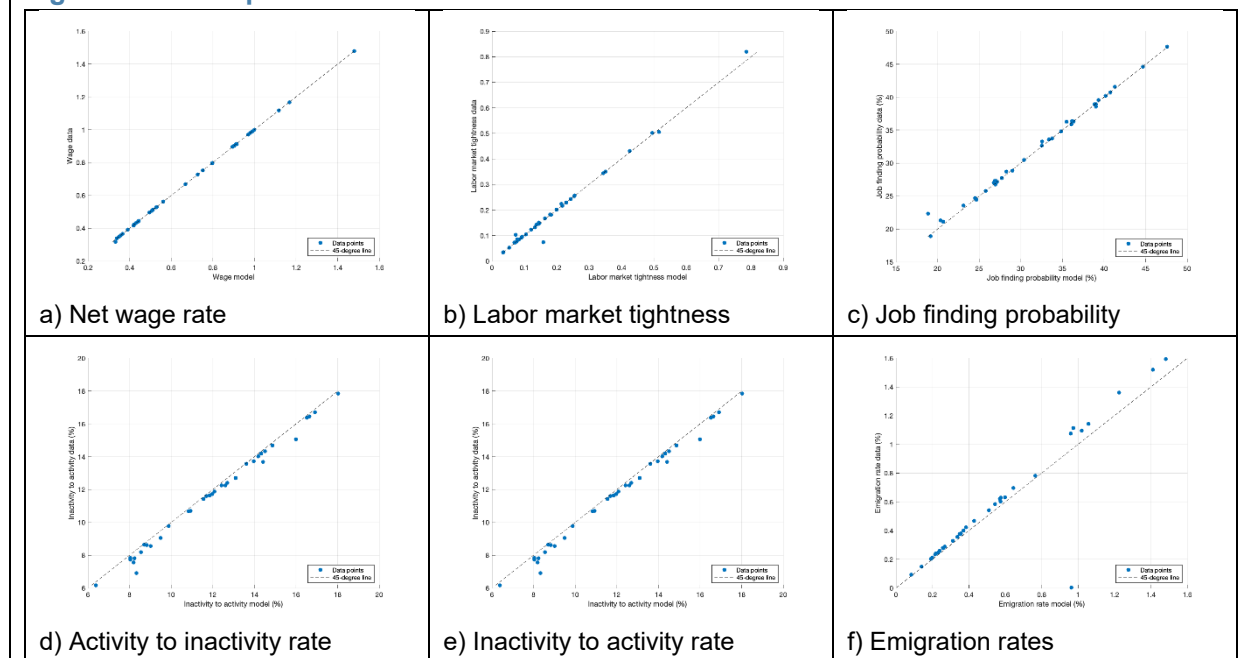
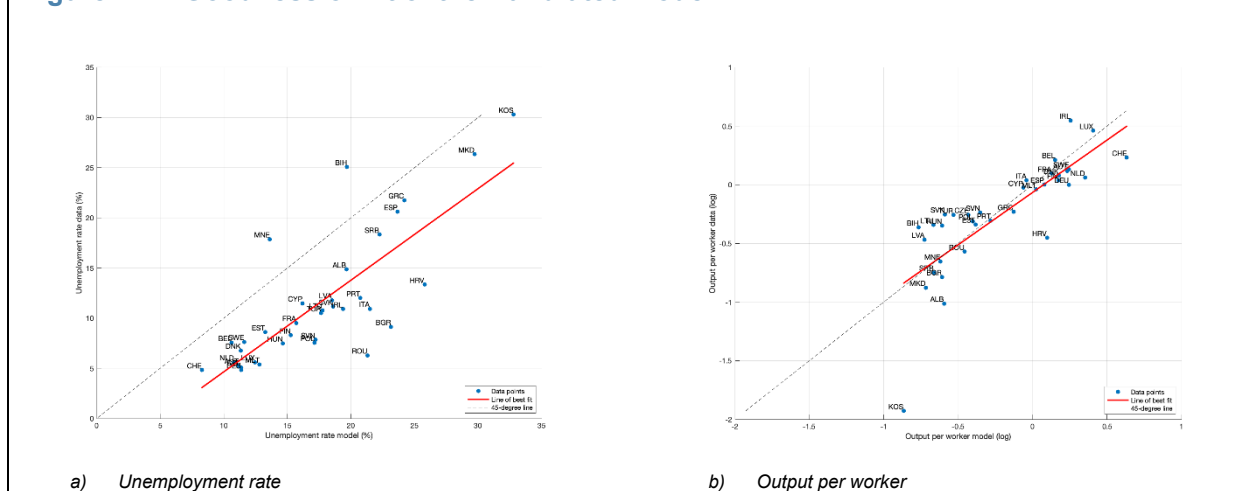


Figure III.2 compares the unemployment rate and output per worker generated in the model and data. Since neither moment is directly targeted, this serves as a goodness-of-fit check on the calibration exercise. In both cases, the model is able to closely replicate the data and the cross-country trend.

Figure IV.2: Goodness of Fit of the Calibrated Model



Notes: The figures report the unemployment rate and output per worker in both the data and model. Neither moment is directly targeted in the calibration.

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