

Mit'ková, Veronika; Kralova, Sona

Article

Wages and income impacts of a liberal migration policy: An experimental study

Naše gospodarstvo / Our Economy

Provided in Cooperation with:

Faculty of Economics and Business, University of Maribor

Suggested Citation: Mit'ková, Veronika; Kralova, Sona (2023) : Wages and income impacts of a liberal migration policy: An experimental study, Naše gospodarstvo / Our Economy, ISSN 2385-8052, Sciendo, Warsaw, Vol. 69, Iss. 4, pp. 38-50, <https://doi.org/10.2478/ngoe-2023-0022>

This Version is available at:

<https://hdl.handle.net/10419/290553>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Wages and Income Impacts of a Liberal Migration Policy: An Experimental Study

Veronika Miřková*, Sona Kralova

Comenius University in Bratislava, Faculty of Social and Economic Sciences, Mlynské luhy 4, 820 05 Bratislava, Slovakia
veronika.mitkova@fses.uniba.sk, sonakralova17@gmail.com

ARTICLE INFO

Original Scientific Article

Article History:

Received November 2023

Revised November 2023

Accepted December 2023

JEL Classification:

C68, J61, J68

Keywords:

CGE Model

Labour migration

Wages

Migrant workers

Labour policy

UDK: 331.556.4:005.955

DOI: 10.2478/ngoe-2023-0022

Cite this article as: Miřková, V., & Kralova, S. (2023). Wages and Income Impacts of a Liberal Migration Policy: An Experimental Study. *Naše gospodarstvo/Our Economy*, 69(4), 38-50. DOI: 10.2478/ngoe-2023-0022.

©2023 The Authors. Published by Sciendo on behalf of University of Maribor, Faculty of Economics and Business, Slovenia. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Abstract

This article investigates the impact of a liberal migration policy that increases labour quotas by 5% on wages and income of residents, native migrants, and new migrants. The article focuses on the impact of migration in 21 areas, with particular attention given to Slovakia and Germany. It is based on data collected from the Global Trade Analysis Project database and the experimental design by Walmsley, Ahmed, and Parsons, with adjustments to capture current global migration flows. The findings indicate that the immigration of new unskilled workers negatively impacts the real wages of unskilled residents, decreasing them by almost 3%, while the arrival of skilled workers increases them by 0.73%. Similarly, the real wages of skilled residents decrease by 2.62% due to the arrival of new skilled migrants, while unskilled migration results in its increase by 0.53%. These findings can aid policymakers in developing policies that maximize the benefits of migration. This research provides new insights into the wage effects of migration in different areas, focusing on Germany and Slovakia.

Introduction

The 20th century witnessed a significant rise in global migration; more specifically, over the past six decades, there has been a substantial increase of almost 200% in the global migrant stock, leading to the emergence of a comprehensive picture of bilateral global migration and one of the most frequently investigated topics of research. The Global Bilateral Migration Database presents global matrices of bilateral migrant populations between 1960 and 2000. The matrices, based on the definition of migrants who are born abroad, are broken down by sex and are a combination of records from population registers and results from five census rounds. The data show that the global migrant stock has grown significantly, from 92 million in 1960 to 165 million in 2000 (Ozden et al., 2011). Since 2000, the number of migrants has increased, reaching 272 million by 2019, according to the International Organization for Migration (IOM, 2023). The impact of labour migration on global economic growth has been the subject of much

*Corresponding author

research in recent years. In 2005, Walmsley and Winters (2005) investigated the impact of a more liberal approach to labour migration using the Global Migration Model (GMig). They examined the impact of a 3% increase in skilled and unskilled labour in economically developed regions. The new labour force came from developing regions, representing its exporters in the experiment. They assumed the migrants would stay active in the new host country for 3 to 5 years. The data they used was from 1997, and by using the model, they concluded that a more liberal approach to labour migration would positively affect all types of economies, both developed and developing. They also showed that bans that limit people's movement negatively affect mainly developing regions.

Two years later, in 2007, Walmsley et al. (2007) extended the Global Migration Model (GMig) to include bilateral migration flows (GMig2), addressing the limitation of insufficient data on bilateral flows of migrants. Even after this extension, the paper supports the original findings that a more liberal approach to labour migration would positively affect all types of economies and that bans on the movement of people have a burdensome effect on the economies of both developing and developed countries. They divided countries into eight host countries and home countries for migrants (seven countries and the rest of the world) and came to the following conclusions: The well-being of permanent residents of advanced economies increased by an average of \$382 per person, of which \$227 comes from the abolition of unskilled labour quotas. Residents of developing economies gain \$4.60 in welfare per person from sending unskilled labour and lose \$1.35 from sending skilled labour. Results vary among developing economies, but overall, countries gain from remittances sent home by migrants from developed countries. New migrants, skilled and unskilled, earn \$6500–\$8000 per worker in real terms. Existing migrants in advanced economies are losing out due to the increasing labour supply, resulting in lower wages.

Hanson (2008) supports the findings of Walmsley & Winters (2005) by creating a review of the empirical literature on migration. He states that international migration is generally beneficial for expanding global production. However, the results of many statistical analyses focusing on wage effects in countries that receive migrants are questionable. According to his contribution, these analyses allegedly did not capture the wage effects well, so he recommends solving the issue through the global general balance.

Dong et al. (2023) used a different approach based on firm-level survey data to examine the effects of

low-skilled immigration on the wages of native workers. They found that an increase in immigrant workers in a firm through Korea's temporary immigrant worker programme does not affect the firm-specific native wages, and native and immigrant workers could be imperfect substitutes.

The paper presented herein examines the global wage effects of increased labour quotas in the context of bilateral migration flows, similar to Felbermayr et al. (2010), who quantified the wage and employment effects for Germany based on the paper of Borjas (2003). It is built on the results of previous studies, in particular the GMig and GMig2 models, to provide a comprehensive analysis of the impact of labour quotas on migrant wages in both host and home countries. A global general equilibrium approach was used to capture the wage effects of labour quotas in different regions and for different skill levels. This analysis contributes to the ongoing debate on the benefits and challenges of labour migration and provides policymakers with evidence-based insights for their policy decisions.

Data

To categorize regions based on their labour import/export status, they were divided into two groups: importing and exporting. Table 1 shows the percentage of foreign-born workers in each region's total labour force and the share of the region's labour force working abroad. The European Union (EU) is included in the regions that import labour. However, Slovakia, which is losing many qualified and unskilled workers, is included in the regions that export labour. For this paper, when referring to the EU, the Slovak Republic and Germany are excluded, as they are treated separately.

Černoša (2014) states that the most significant deterministic factors that generally explain the share of the immigrant population are a common language, destination, a country's population, and the great circle distance between two countries. Although his research focuses on immigrants generally, the conclusions may be also applied to labour migrants.

First, the wage data according to the Gmig2 database, version 10, are presented. The wage rates represent residents' nominal and real wage in each modelled region. Residents are divided into two skill levels according to their qualifications: skilled and unskilled workers. Figure 1 represents the average nominal wages of residents in each region (using 2014 exchange rates).

Table 1*Division of regions in the experiment*

	Country/Region	Labour force born abroad (%)	Labour force living abroad (%)
Importing labour force	Australia and New Zealand	23.42	2.82
	Japan	1.91	0.84
	Canada	18.64	4.63
	USA	13.44	1.21
	Rest of EU	6.56	5.04
	Germany	12.15	5.76
	Rest of Europe	18.57	13.06
	UK	10.65	8.59
Exporting labour force	China	0.10	0.62
	Rest of Asia	1.62	3.43
	Southeast Asia	0.47	2.45
	South Asia	0.13	1.96
	Mexico	1.08	10.09
	South and Central America	0.37	2.53
	Slovakia	2.86	10.45
	Rest of the World	1.83	13.74
	Rest of East Europe	4.06	6.26
	Former Soviet Union	8.36	10.64
	West Asia	13.66	3.76
	North Africa	0.77	5.37
	Rest of Africa	0.25	0.78

Source: Own processing based on GTAP10 data

The countries were classified as importing the labour force (on the left side of the graph), where average nominal wages for both skill groups are high relative to the countries exporting the labour force (on the right side of the diagram). The general assumption that skilled workers are better valued financially than unskilled workers is confirmed in all regions. In Germany, average nominal wages for both groups are higher than the average for the countries of the European Union. Slovakia belongs to the group of regions with the lowest salary evaluation and is also below the EU average, while US residents have the highest average nominal wages.

To gain more comparable data, the nominal wages were adjusted by the purchasing power parity index (PPP) to equal one for the USA. Figure 2 then represents the average real wages of residents in the same regions.

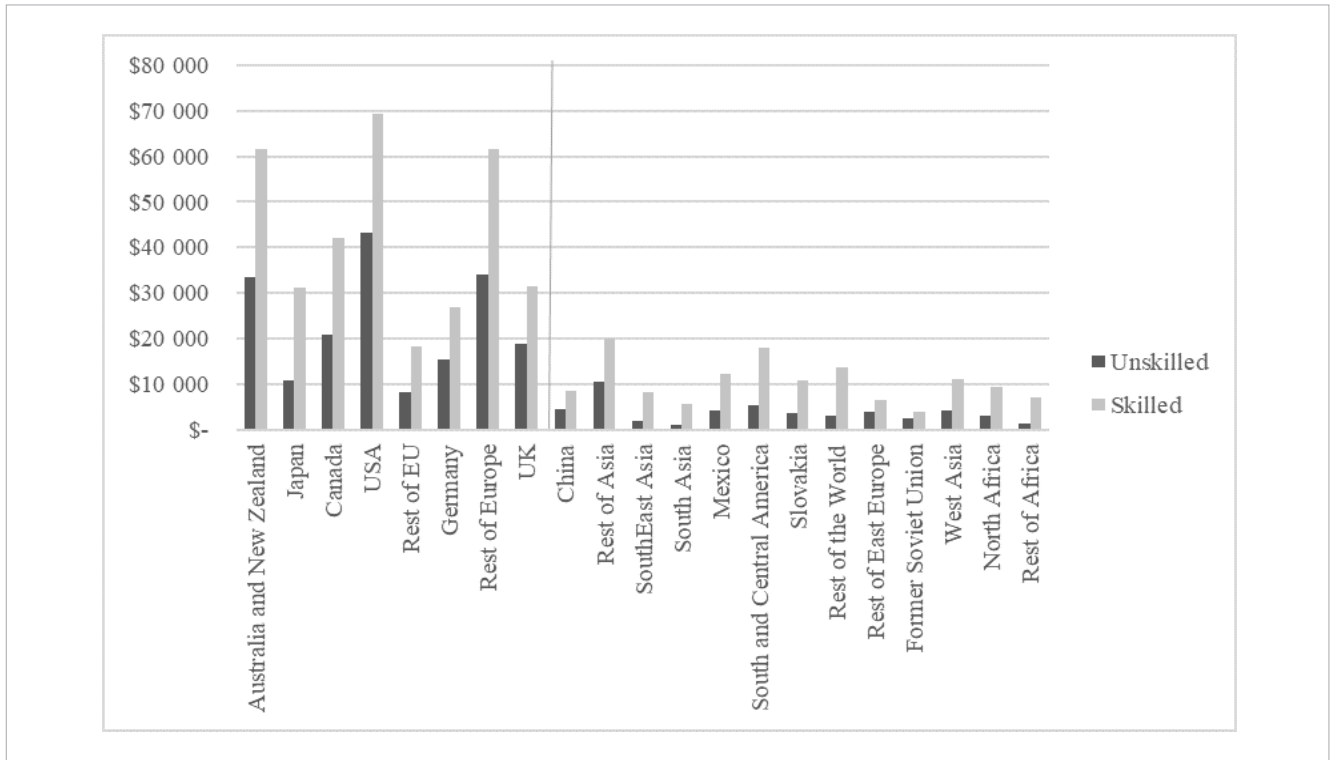
Comparing residents' nominal and real wages, the differences between individual regions are smaller but still

significant. In some regions identified as labour force importers, real wages are higher than those exporting labour (e.g., Japan as an importer and China as an exporter).

Remittances for this work are a constant part of the income of residents in the home region sent by migrants to their home regions. As the number of migrants increases (or their wages increase), the volume of remittances and the income of permanent residents in the home region rises. Remittances also reduce migrants' income, as these are funds that migrants send elsewhere; thus, they also affect the region's balance of payments. In Figure 3, remittances are depicted as a percentage of the income of migrants transmitted to their home country. Data from the Gmig2 core database reveals that the predominant proportion of remittances originates from migrants directed towards three specific home regions: North Africa, Slovakia, and South Asia.

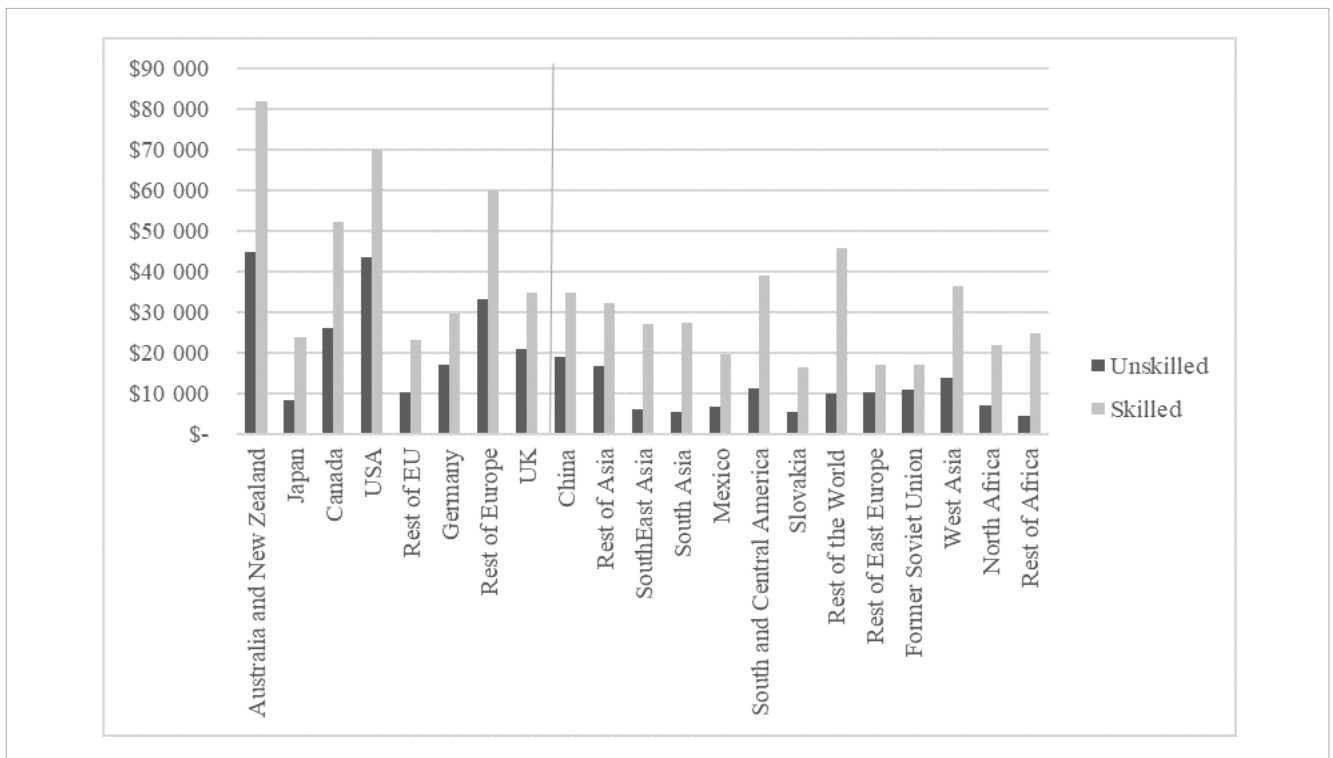
Consequently, the average Slovak expatriate channels up to 63% of their earnings back home, significantly surpassing

Figure 1
Average nominal wages of residents



Source: GMig2 database

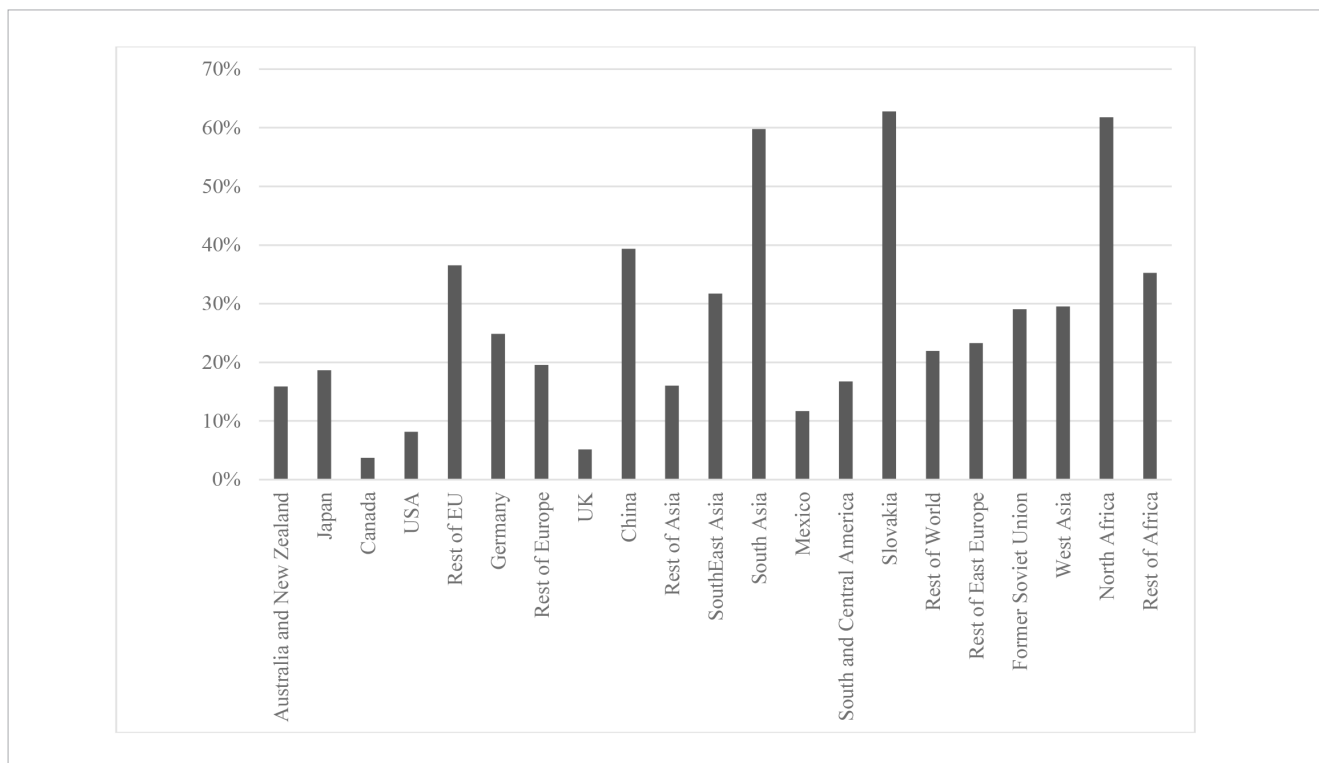
Figure 2
Average real wages of residents



Source: Own calculations based on GMig2 database

Figure 3

Percentage of remittances sent home by migrants from each region



Source: Own calculations based on GMig2 database

the global average of 27.4%. Migrants from the European Union (excluding Slovakia and Germany) contribute remittances equivalent to 36% of their income, a figure exceeding the global norm. Conversely, migrants from exporting regions exhibit a lower volume of remittance transfers.

Timmer and van der Mensbrugge (2006) posit that global welfare experiences an augmentation when migrants from low-income countries remit funds to their country of origin. Intriguingly, the increase in global welfare is not mirrored in the case of aid flows or transfers from developed economies to impoverished nations; specifically, remittances play a pivotal role. The authors attribute this phenomenon to a distinct consumption pattern by migrants residing in host countries. Ratha (2021) says that in 2019, remittances were worth \$548 billion, and this value was three times official development assistance (\$166 billion) and surpasses foreign direct investment (\$534 billion).

Methods

As the European Union's population ages, importing labour from other regions becomes increasingly important. This paper examines the impact of easing restrictions on the

temporary movement of people by increasing labour quotas and considers how changes in migration policy affect wages in particular areas. The computable general equilibrium model developed by Walmsley et al. (2007) was used to simulate the effects of quota increases in the host region. There are seven assumptions guiding the utilization of the Gmig2 model:

- The participation rate of the migrant labour force in the home country is assumed to be equivalent to that in the host country within the initial database.
- The foreign labour force is categorized into skilled and unskilled segments. While Walmsley et al. (2007) relied on data from Docquier and Mafouk (2005) for this classification, our utilisation of more recent data from the International Labour Organisation is necessitated by updates in the database (GTAP version 10).
- A migrant's nominal wage in the host country is posited to be the product of the domestic wage and the disparity between host and domestic wages.
- The model assumes that remittances constitute a constant fraction of income. Accordingly, bilateral remittance flows in the database are determined based on this assumption.

- Income from factors of production, such as land and capital, aside from remittances, is directed to domestic residents residing in the host country.
- Both domestic residents and migrant workers are obligated to pay taxes. However, benefits from public goods funded by tax revenues exclusively accrue to domestic residents. Quantification of the minimum benefits extended to migrants is challenging.
- All revenues must undergo allocation or exhaustion. Adjustments for savings are necessary post-incorporation of remittance flows.

The model's wages, incomes, and remittances are treated as in Wamsley et al. (2007). Equation 1 shows that the nominal wage of migrant $W_{i,r,c}$ in the host country equals the domestic wage $W_{i,r,r}$ plus β times the difference between the host wage $W_{i,c,c}$ and the domestic wage $W_{i,r,r}$.

$$W_{i,r,c} = W_{i,r,r} + \beta \cdot (W_{i,c,c} - W_{i,r,r}) \quad (1)$$

Where:

- c is the home region,
- i is the skill for labour,
- r is the host region,
- β is the ratio of the host country's wage and the domestic wage.

According to Wamsley et al. (2007), for this parameter, two values were set: if the host wage is greater, β equals 0.75, while if the domestic wage is greater, β equals 0.2. In the previous research in Wamsley et al. (2005) the β values were 0.75 and 0.3, respectively.

In Equation 2, there is a formula for the change of income of permanent residents, which depends on the changes in income from non-labour and labour endowments, $\Delta FY_{f,r,r}$ and $\Delta FY_{l,r,r}$ remittances $\Delta RM_{r,c}$ depreciation ΔD_r and tax revenue ΔT_r .

$$\Delta Y_{r,r} = \sum_{f \in \text{NLAB}} \Delta FY_{f,r,r} + \sum_{l \in \text{LAB}} \Delta FY_{l,r,r} + \Delta D_r + \Delta T_r + \sum_{c \in \text{REG}} \Delta RM_{r,c} \quad (2)$$

Where:

- f is non-labour endowment,
- l is labour endowment.

The change of income of existing migrants $\Delta Y_{r,c}^E$ is given by Equation 3 as the difference between the change in income from their labour endowment $\Delta FY_{l,r,c}^E$ and remittances sent home $\Delta RM_{r,c}$ (E stands for existing).

$$\Delta Y_{r,c}^N = \frac{PPP_c}{PPP_r} \cdot \left[\sum_{l \in \text{LAB}} \Delta FY_{l,r,c}^N - RM_{r,c}^N \right] - \sum_{l \in \text{LAB}} IFY_{l,r,c}^N \quad (3)$$

The change in real income of new migrants $\Delta Y_{r,c}^N$ is shown in Equation 4, where it equals the difference in the final income from labour $\Delta FY_{l,r,c}^N$ less remittances $RM_{r,c}^N$ discounted by the purchasing power parities ratio in the new residence and home country $\frac{PPP_c}{PPP_r}$, less the labour income they received before they migrated $IFY_{l,r,c}^N$ (I stands for initial, N stands for new).

$$\Delta Y_{r,c}^N = \frac{PPP_c}{PPP_r} \cdot \left[\sum_{l \in \text{LAB}} \Delta FY_{l,r,c}^N - RM_{r,c}^N \right] - \sum_{l \in \text{LAB}} IFY_{l,r,c}^N \quad (4)$$

This section operates under the assumption that although foreign and domestic labour wages and marginal products may not be equal, they are perfect substitutes. Inward migration can lead to falling wages and increased productivity due to more affordable labour. Since capital is a scarcer production factor than labour, its returns increase. The model is thus consistent with the standard trade theory.

In the presented experiment, a labour quota increase by 5% in host (importing) countries for both unskilled and skilled labour was modelled. For this reason, the GMig2 model was modified, as suggested in Walmsley et al. (2007), for the following model closures:

```
swap c_MIGNOSP(LAB_COMM,LEXP_REG,LIMP_REG)
= c_slackmigin(LAB_COMM,LEXP_REG,LIMP_REG);
swap qop(LAB_COMM,LIMP_REG) =
c_smigin(LAB_COMM,LIMP_REG);
swap c_SLACKRMIGS(LAB_COMM,LEXP_REG,LIMP_REG)
= c_RMIGS(LAB_COMM,LEXP_REG,LIMP_REG);
```

The exogenous shock was then set with two subtotals:

```
Shock qop("sklab",LIMP_REG) = uniform 5;
Shock qop("unsklab",LIMP_REG) = uniform 5;

Subtotal qop("unsklab",LIMP_REG) = qop("unsklab",LIMP_REG) changes;
Subtotal qop("sklab",LIMP_REG) = qop("sklab",LIMP_REG) changes;
```

Results

The model examines changes in the income of individual groups depending on the effects of skilled and unskilled migration. In the next part, changes in wages and the real

income of residents, original migrants, and new migrants will be presented.

Residents' wage effects

The new equilibrium leads to the following results on unskilled residents. The real wages of the original unskilled workers in the importing economies are significantly affected negatively by the arrival of new unskilled workers, see Table 2 and Figure 4, leading to a decrease in real wages by 2.63% on average in the host economies. The opposite effect occurs in the migrants' home regions, where wages increase after the shock by 1.61% on average, the only exception being South Asia, where a slight decrease can be found. Slovakia records the most significant change of all the countries in its group, with the real wage of unskilled workers increasing by 6.59%. In developed economies, on the other hand, real wages of unskilled workers will increase by 0.88% on average due to the inflow of skilled workers, specifically by 0.73% in the rest of the EU and by 0.8% in Germany. Due to the outflow of skilled labour, real wages of unskilled labour in exporting regions decrease by -0.45% on average. At the same time, the real wage of Slovak unskilled workers would decrease by 1.06% in the case of a simulated departure of skilled workers.

The wage effects on skilled residents are examined in the following part: Table 3 and Figure 5 clearly show the positive changes in the real wage of the original skilled workers in the host regions caused by the arrival of new

unskilled workers. All host regions behave globally similarly, and the real wage of the original skilled workers increases by 0.63% on average (in the EU, the real wage will increase by 0.53%, and in Germany, by 0.62%). After the migration of unskilled workers, skilled workers from Slovakia will negatively impact wages, with a decrease of 0.43%. At the same time, Slovakia is not the only country from its group that reacts with a decrease. In the regions sending workers, the real wage of initially skilled workers will decrease by 0.13% on average due to the outflow of unskilled workers. The effects of the inflow and outflow of skilled workers on the real wage of the original skilled workers can be seen; it is obvious that skilled workers compete directly with each other as the wages of the original skilled workers decrease with the arrival of new skilled workers. Conversely, as skilled workers leave their home country, the value of the remaining skilled workers increases. In Slovakia, we find an 8.11% increase in the real wage of skilled workers in this case.

Residents' income

As seen in Figure 6, not all the residents of individual countries receive a higher income from migration. In the countries recruiting the new labour force from abroad, except for Japan, residents' income will rise in all regions due to the increase in the number of new workers in both qualification groups. It cannot be definitively stated which skill group increases residents' income more, as the impact varies by region.

Table 2

Percentage change in the real wage of unskilled residents resulting from skilled and unskilled migration

Importing Country/Region	Unskilled	Skilled	Exporting Country/Region	Unskilled	Skilled
Australia and New Zealand	-2.60	0.87	China	0.01	-0.17
Japan	-2.82	0.63	Rest of Asia	1.24	-0.73
Canada	-2.50	1.10	Southeast Asia	0.28	-0.24
USA	-2.17	1.27	South Asia	-0.01	0.13
Rest of EU	-2.99	0.73	Mexico	2.85	-0.38
Germany	-2.48	0.80	South and Central America	0.72	-0.63
Rest of Europe	-3.03	0.83	Slovakia	6.59	-1.06
UK	-2.45	0.82	Rest of the World	3.89	-1.27
			Rest of East Europe	1.89	-0.47
			Former Soviet Union	0.52	-0.27
			West Asia	0.54	-0.26
			North Africa	2.30	-0.16
			Rest of Africa	0.23	-0.16

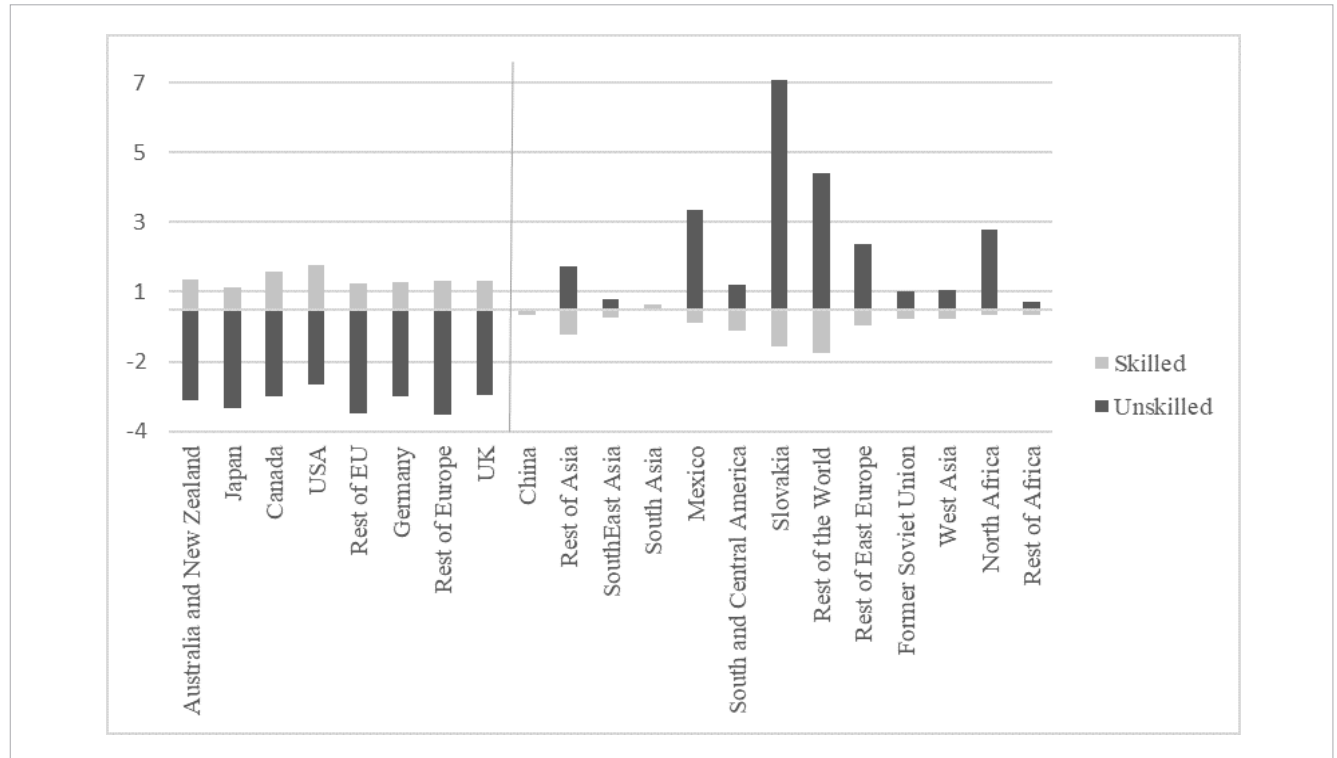
Source: Own calculations (RunGTAP)

Within the European Union (the Rest of the EU and Germany regions), residents' income significantly increased due to the reception of qualified migrants. Economies that import labour can gain, for example, increased

tax revenues or increased capital returns. In Slovakia's case, residents' incomes increase due to the sending of qualified labour away. One of the possible justifications is that skilled workers send remittances back to the

Figure 4

Percentage change in the real wage of unskilled residents resulting from skilled and unskilled migration



Source: Own calculations (RunGTAP)

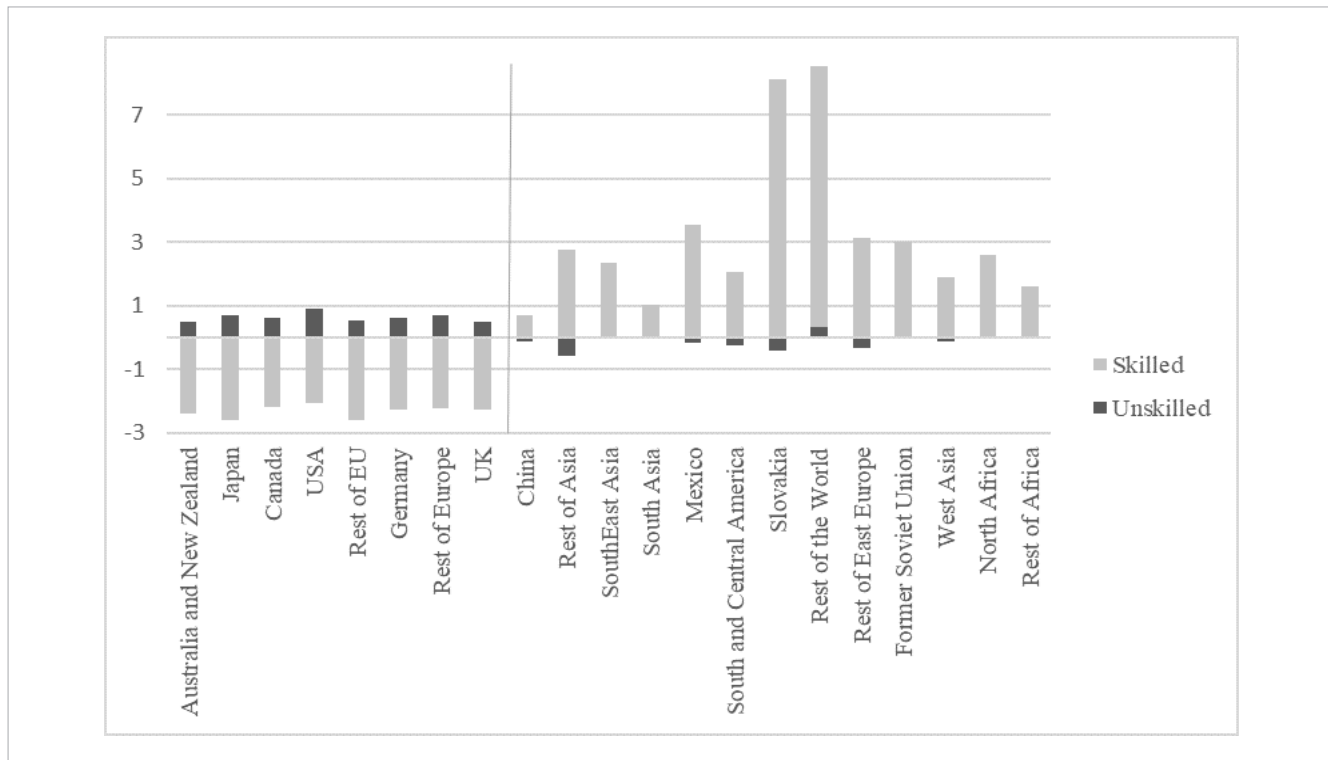
Table 3

Percentage change in the real wage of skilled residents resulting from skilled and unskilled migration

Importing Country/Region	Unskilled	Skilled	Exporting Country/Region	Unskilled	Skilled
Australia and New Zealand	-2.60	0.87	China	0.01	-0.17
Japan	-2.82	0.63	Rest of Asia	1.24	-0.73
Canada	-2.50	1.10	Southeast Asia	0.28	-0.24
USA	-2.17	1.27	South Asia	-0.01	0.13
Rest of EU	-2.99	0.73	Mexico	2.85	-0.38
Germany	-2.48	0.80	South and Central America	0.72	-0.63
Rest of Europe	-3.03	0.83	Slovakia	6.59	-1.06
UK	-2.45	0.82	Rest of the World	3.89	-1.27
			Rest of East Europe	1.89	-0.47
			Former Soviet Union	0.52	-0.27
			West Asia	0.54	-0.26
			North Africa	2.30	-0.16
			Rest of Africa	0.23	-0.16

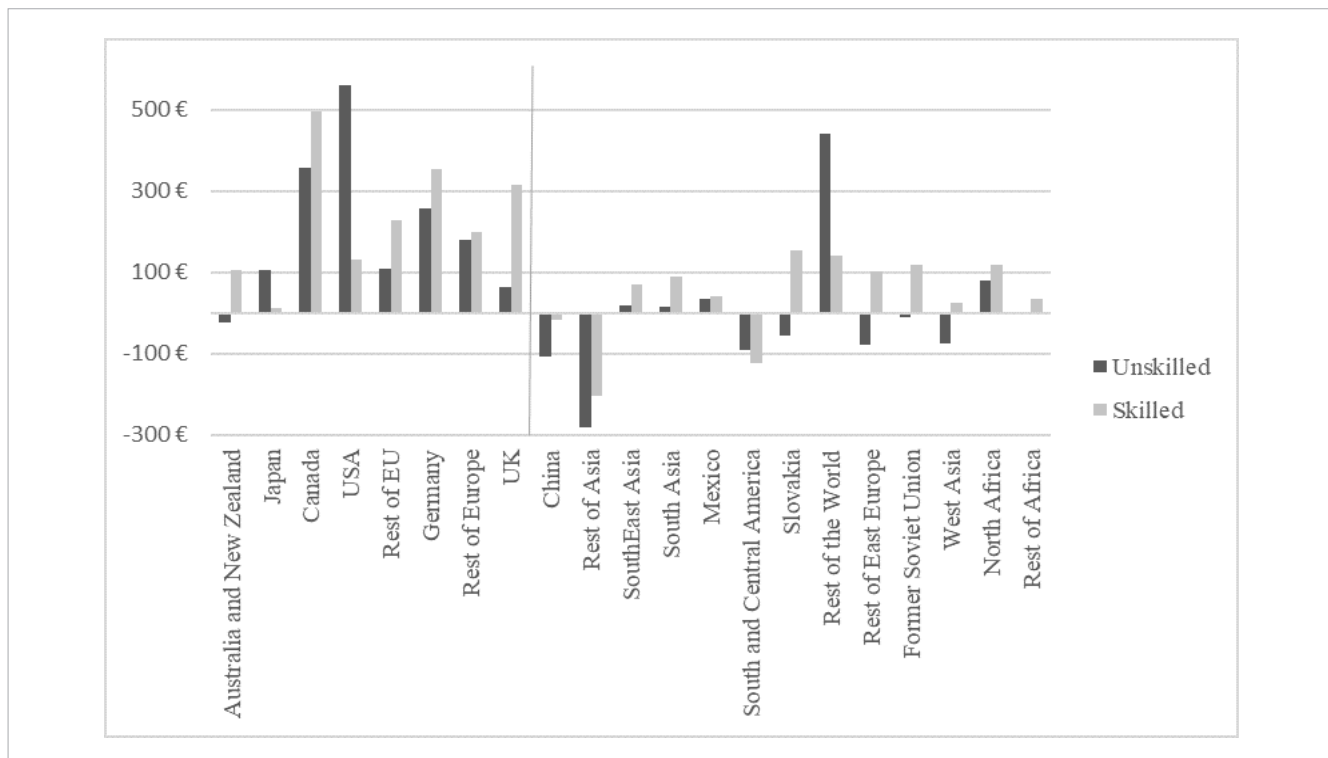
Source: Own calculations (RunGTAP)

Figure 5
 Percentage change in the real wage of skilled residents resulting from skilled and unskilled migration



Source: Own calculations (RunGTAP)

Figure 6
 Real income change of residents per capita



Source: Own calculations (RunGTAP)

home country, which are a part of the residents' income, meaning that their departure from the home country increases the residents' wages. For example, residents in the Rest of the World also gain real income, mainly due to sending unskilled labour abroad.

Native migrants

The model assumes that the wages of native migrants are the same as those of residents, but they do not have the same income. Migrants do not have capital gains or losses, as capital is assumed to be owned by residents; migrants also do not receive tax benefits. Therefore, the income of the original migrants, see Figure 7, consists only of labour subsidies (wages) and is further reduced by the remittances that the original migrants send to their home countries.

As a result, the income of native migrants is falling in almost every region. According to the assumption, income should decrease in the regions that are receiving the new labour force, as wages also decrease, with the opposite being true mainly in the US region. In turn, an increase could be expected in the income of native migrants in labor-exporting countries, as wages rise due to a downturn in labour supply.

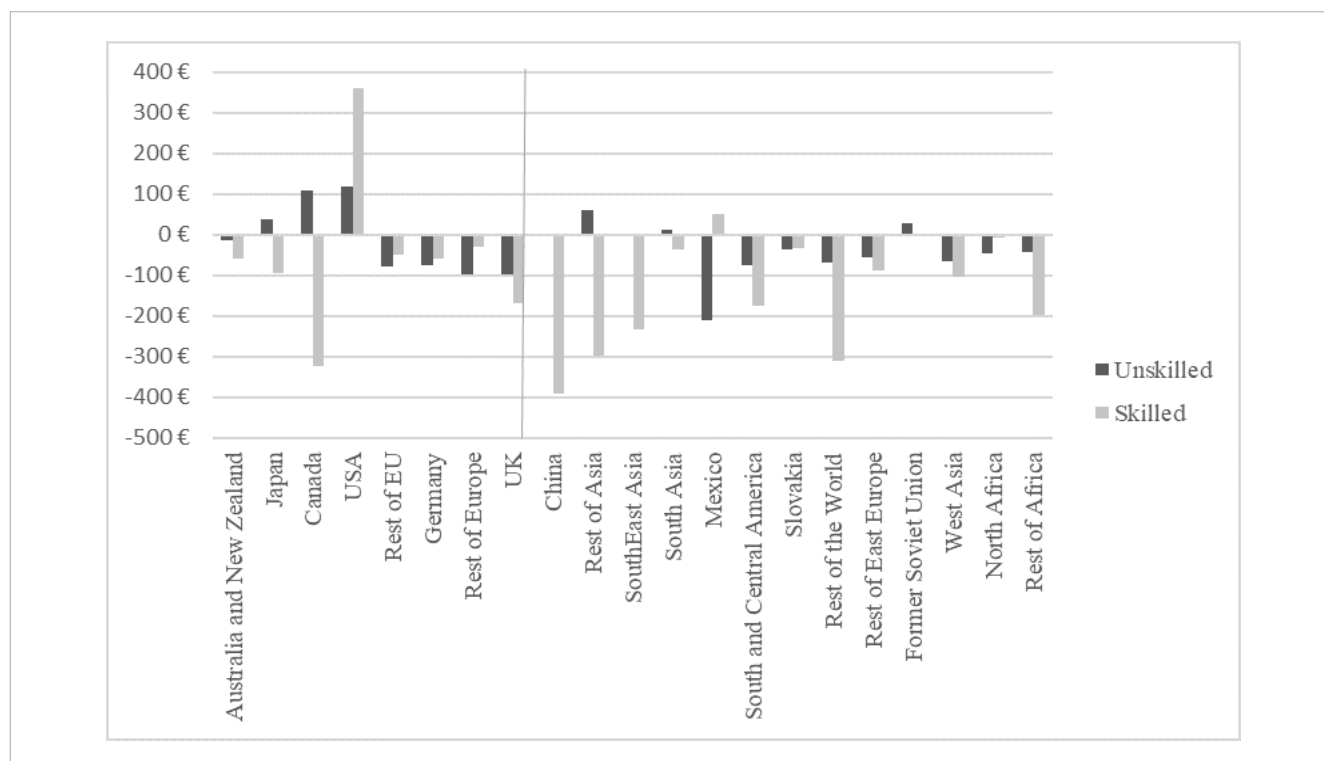
In the case of implementation of the experiment, the income of all original migrants in the European Union would drop, although the region Rest of the EU and Germany receive labour, while Slovakia sends it.

New migrants' income

The third group whose income change will be analysed is the group of new migrants. Table 4 provides an overview of the percentage change in the real income of new migrants, net of remittances, relative to domestic income, depending on the type of labour force migration. The results show the percentage change per new migrant.

In terms of real incomes, not every new migrant will do better. Concerning the impact of unskilled migration, the best labour destinations for new migrants globally are the US, Australia, and New Zealand (except migrants from the North Africa region), and the Rest of Europe region, as unskilled migration increases the real income of new migrants most significantly in these regions. This may be due to the high real wages in these regions. The values of the change in real income of new migrants arriving in Germany are interesting, as their income either decreases or does not increase significantly. The Rest of the EU region is an equally unattractive labour destination. Concerning

Figure 7
Real income change of native migrants per capita



Source: Own calculations (RunGTAP)

Table 4

Percentage change in real income of new migrants (net of remittances, per new migrant) to real domestic income due to unskilled (usnk) and skilled (sk) migration

Domestic countries	Host countries															
	Australia and New Zealand		Japan		Canada		USA		Rest of EU		Germany		UK		Rest of Europe	
	usnk	sk	usnk	sk	usnk	sk	usnk	sk	usnk	sk	usnk	sk	usnk	sk	usnk	sk
Rest of World	83	-6	0	0	80	-19	165	-4	-21	-56	-3	-62	46	-45	188	-10
China	6	19	-81	-71	-30	-21	3	-5	-72	-67	-62	-64	-35	-42	3	-20
Rest of Asia	59	83	-58	-46	14	10	84	45	-40	-43	-25	-35	-3	-20	68	23
Southeast Asia	318	75	-35	-58	135	-4	293	31	15	-49	40	-44	80	-28	251	14
South Asia	130	-11	-53	-75	36	-44	138	-33	-25	-65	46	-48	19	-61	202	-23
Mexico	410	213	-10	-14	172	87	345	152	45	15	77	8	120	27	397	141
South and Central America	191	59	-49	-57	57	-6	130	18	-22	-44	2	-46	30	-34	185	19
Slovakia	163	61	0	0	42	-3	132	27	-62	-60	-8	-44	15	-34	153	21
Rest of East Europe	180	211	-43	-7	49	83	148	143	-49	-28	2	8	23	25	141	105
Former Soviet Union	59	96	0	0	-10	55	8	1	-66	-54	8	19	48	56	117	98
West Asia	13	9	-59	-54	-20	-27	63	10	-41	-67	-18	-54	3	-36	120	6
North Africa	-9	-56	-87	-88	10	-26	15	-51	-24	-50	-24	-53	1	-43	119	-7
Rest of Africa	490	99	-51	-77	210	8	380	26	28	-47	68	-46	136	-33	442	35

Source: Own calculations (RunGTAP)

the impact of skilled migration, the real income of new migrants is in most cases, reduced by it. Nevertheless, the new migrants whose real income increases the most in most countries due to skilled migration are, for example, those from Mexico.

Discussion

A more liberal migration policy, which includes a 5% increase in quotas for the admission of new migrants, affects residents' wages. Here, the different impacts of the two skill groups of migrants are encountered. The real wage of unskilled residents is negatively affected by the immigration of new unskilled workers and decreases by almost 3%; in contrast, the wage increases by 0.73% due to the immigration of skilled workers. The same behaviour is observed in the real wages of skilled residents. Thus, their wages decrease by 2.62% due to the arrival of new skilled migrants and increase by 0.53% due to unskilled migration.

Due to the arrival of both skill groups, residents' real per capita income increased in the rest of the EU region. Unskilled migration increases resident income by \$109.59 and skilled migration by \$229.42. The real income of

native migrants is negatively affected by the arrival of new migrants. The new unskilled labour force reduces the income of the native migrant by \$79.26 and the skilled labour force by \$47.91.

In Germany, changes in migration policy have prompted the arrival of 1.194 million unskilled workers and 927 thousand skilled workers. This shift has also affected resident wages. Unskilled residents have seen a decline of 2.48% in real wages due to unskilled migration and an increase of 0.8% due to skilled migration. Conversely, the real wage of skilled residents is negatively affected by skilled migration, resulting in a 2.27% decrease, while unskilled migration leads to a 0.62% increase. Notably, these outcomes mirror those observed in the Rest of the EU region.

In Slovakia the results diverge as the region experiences a loss rather than a gain of labour. The departure of 167,000 unskilled workers and 89,000 skilled workers influences the real wages of residents. Unskilled residents witness a notable increase of 6.59% with the departure of unskilled workers (the highest among the observed regions) and a decrease of 1.06% with the departure of skilled workers. Similarly, the real wage of skilled residents sees a substantial increase of 8.11% with the departure of skilled

workers and a decrease of 0.43% with the departure of unskilled workers. The positive impact on residents' real income is solely attributed to the departure of skilled workers, increasing to \$152.55. Conversely, the departure of unskilled labour causes a decrease of \$57.32. The income of native migrants, affected by the departure of both skill groups, also experiences a decline of about \$35.

Conclusion

The main objective of this paper was to analyze wage changes and thus test the hypothesis that the arrival of new migrants in a country reduces the wages of the original workers. The results depend on whether the country exports or imports the labour force and whether skilled or unskilled workers migrate. However, it may be concluded that in most host regions, the wages of skilled workers decrease with the arrival of new skilled migrants

and increase in sending regions with their departure. The effect is the opposite in the case of unskilled workers.

The results imply that countries with a high ratio of incoming labour force encounter mostly the same effects on wages, while the countries with high ratio of outgoing labour differ in the size of the effects, mainly in that group of the remaining labour force which exits the country of its origin.

Acknowledgment

This paper is an output of the science project VEGA 1/0668/22 entitled "Migration and the silver economy: economic, political, and legal implications of addressing the problem of population aging and migration in EU countries" and APVV-22-0526 entitled "The Economic and Fiscal Effects of Migration in Slovakia: An Integrated Modelling Approach".

References

- Borjas, G. J. (2003) "The labor demand curve is downward sloping: Reexamining the impact of immigration on the labor market." *Quarterly Journal of Economics*, 118(4), 1335–1374. DOI: <https://doi.org/10.1162/003355303322552810>
- Černoša, S. (2014) "The Link Among Trade, Fdi and Immigration." *Naše gospodarstvo/Our Economy*, 60(1-2), 3-11. DOI: <https://doi.org/10.7549/ourecon.2014.1-2.01>
- Docquier, F., & Marfouk, A. (2005). "International Migration by Educational Attainment (1990-2000)-Release 1.1". *International migration, remittances and development*. New York: Palgrave Macmillan.
- Dong, M.C., Lee, J.K., & Yang, H.S. (2023) "How does low-skilled immigration affect native wages? Evidence from Employment Permit System in Korea." *Oxford Economic Papers - New Series*, gpad011. DOI: <https://doi.org/10.1093/oep/gpad011>
- Felbermayr, G., Geis, W., & Kohler, W. (2010) "Restrictive immigration policy in Germany: pains and gains foregone?". *Review of World Economics*, 146, 1–21. DOI: <https://doi.org/10.1007/s10290-009-0044-z>
- Hanson, G. (2008). International Migration and Development. *Commission on Growth and Development Working Paper 42*. World Bank, Washington, DC.
- Migration in the world - International Organization for Migration (IOM) Slovakia (March 2023). Retrieved from <https://iom.sk/en/migration/migration-in-the-world.html>
- Ozden, C., Parsons, C., Schiff, M., & Walmsley, T. (2011). "Where on Earth Is Everybody? The Evolution of Global Bilateral Migration 1960–2000." *World Bank Economic Review*, 25, 12-56. DOI: <https://doi.org/10.1093/wber/lhr024>
- Ratha D. (2021) "Staying the course on global governance of migration through the COVID-19 and economic crises". *International Migration*, 59(1), 285–288. DOI: <https://doi.org/10.1111/imig.12822>
- Timmer, H., & van der Mensbrugghe, D. (2006). "International Migration, Purchasing Power Parity (PPP) and the Money Metric of Welfare Gains" Purdue University, West Lafayette, IN: *Global Trade Analysis Project (GTAP)*.
- Walmsley, T. & Winters, L. (2005). "Relaxing the Restrictions on the Temporary Movement of Natural Persons: A Simulation Analysis 1". *Journal of Economic Integration*, 20, 688-726. DOI: <https://doi.org/10.11130/jei.2005.20.4.688>
- Walmsley, T., Ahmed, S., & Parsons, C. (2007). *A Global Bilateral Migration Data Base: Skilled Labor, Wages, and Remittances* (GTAP Research Memorandum No. 06). Purdue University, West Lafayette.

Učinki liberalne migracijske politike na plače in dohodek: eksperimentalna študija

Izvleček

Članek raziskuje vpliv liberalne migracijske politike, ki povečuje kvote delovne sile za 5 %, na plače in dohodke rezidentov, domačih migrantov in novih migrantov. Članek se osredotoča na vpliv migracij na 21 območjih, pri čemer je posebna pozornost namenjena Slovaški in Nemčiji. Temelji na podatkih, zbranih iz podatkovne zbirke Global Trade Analysis Project, in eksperimentalni zasnovi Walmsleyja, Ahmeda in Parsonsa, s prilagoditvami, ki zajemajo trenutne globalne migracijske tokove. Ugotovitve kažejo, da priseljevanje novih nekvalificiranih delavcev negativno vpliva na realne plače nekvalificiranih prebivalcev, saj jih zmanjša za skoraj 3 %, medtem ko jih prihod kvalificiranih delavcev poveča za 0,73 %. Podobno se realne plače kvalificiranih prebivalcev zaradi prihoda novih kvalificiranih priseljencev zmanjšajo za 2,62 %, medtem ko se zaradi priseljevanja nekvalificiranih delavcev povečajo za 0,53 %. Te ugotovitve so lahko oblikovalcem politik v pomoč pri oblikovanju politik, ki povečujejo koristi migracij. Ta raziskava zagotavlja nova spoznanja o učinkih migracij na plače na različnih območjih, pri čemer se osredotoča na Nemčijo in Slovaško.

Ključne besede: CGE Model, labour migration, wages, migrant workers, labour policy