



Legal migration policy and law

Annex II to the
European added
value assessment

STUDY

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European legal migration policy and law: An assessment of the potential macro-economic impacts of EU-level policy options

Research paper

This research paper investigates the potential macro-economic effects of selected EU-level policy options on legal migration on the EU economy. The approach is based on a macro-economic model that models several frictions and barriers on the supply and demand side of the EU labour market resulting in the sub-optimal allocation of labour and lower productivity. Each policy option addresses a specific friction or barrier and consequently has a specific role in generating economic gains relative to the policy status quo. In terms of GDP, these gains range between about €2.8 billion and €19.5 billion per year, when considering individual policy options. Implementing several options together substantially increases the long-run benefits (between about €37.6 and €74.0 billion per year), generating synergies and greater economic gains for society.

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Executive summary

A European added value assessment (EAVA) has been prepared in support of the European Parliament's¹ own-initiative legislative report on '**Legal migration policy and law**' (2020/2255 (INL)). The EAVA presents a spectrum of EU-level policy options and assesses their potential impacts on the EU economy and society, as well as impacts on fundamental rights. Among the impacts assessed were macro-economic impacts, and more particularly, estimated gains for the EU's GDP. This work was carried out through a collaboration with the Joint Research Service of the European Commission (JRC).

This annex, which is a **joint publication of the JRC and EPRS**, presents an overview of the methodology used to assess the macro-economic impacts of selected policy options at the EU level on legal migration. The annex reviews the conceptual approach, defines the counterfactual scenarios for a selection of the policy options covered by the EAVA, and presents detailed results from the macro-economic model for each policy option. More information about the macro-economic model and its technical specifications can be found in a forthcoming JRC technical report.²

In total, **seven of the 11 policy options/sub-options presented in the EAVA were assessed** in the macro-modelling exercise. The remaining policy options/sub-options were excluded due to challenges related to gathering the relevant inputs for the policy impact parameters. Two policy options (policy options 2b and 2c) were modelled jointly due to the similarities in their impact channels. The selected policy options were split into two groups – supply-side options (policy options 1, 4a, 4b) and demand-side options (policy options 2b and 2c 3a, 3c).

All policy options have positive effects on the EU economy, although the size of the effect can vary substantially. Overall policy options lead to small but positive effects on both migrants' and natives' **wages** and on **productivity**. In addition, supply-side policy options are expected to increase human capital in medium- and high-skilled occupations, and demand-side policy options are expected to increase the presence of migrant-owned firms.

Table 1 presents an overview of the impacts in terms of GDP. The findings of the macro-modelling exercise also reflect the complementarity and synergies of the policy options. For example, the joint implementation of all supply-side policy options (1, 4a and 4b) could generate about €74.0 billion, which is substantially more than the sum of the estimated annual GDP gains for each policy option separately (€44.6 billion). The combined effect of the labour demand-side policy options stands at about €37.6 billion, which corresponds to a 0.27 % increase of EU-27 GDP.

It is important to interpret the results with caution as the modelling exercise requires making simplifying assumptions. The counterfactual simulations are not intended to quantify the exact magnitude of the expected policy impacts, but rather, to indicate the direction of the expected changes and the mechanics behind the complex interdependencies from a general equilibrium perspective.

¹ The proposal is being put forward by the European Parliament's Committees on Civil Liberties, Justice and Home Affairs (LIBE).

² Kancs et al. (2021) Addressing the EU's Future Labour Market Needs, Joint Research Centre Technical Report JRC125372, European Commission.

Table 1: Overview of estimated macro-economic effects of selected EU-level policy options

	Policy option		Friction/barrier as per macro-model	Macro-economic assessment findings:	
				Estimated increase in GDP per worker	Estimated annual GDP gain
Supply side	Policy option 1	Promote the recognition of professional qualifications	Human capital frictions	0.11 %	€15.3 billion
	Policy option 4a	Alignment of rights of TCNs compared with EU nationals	Informal institutional frictions	0.07 %	€9.8 billion
	Policy option 4b	Strengthen enforcement of TCN workers' rights	Labour market frictions	0.14 %	€19.5 billion
	All excess barriers/frictions on the demand side:			0.53 %	€74.0 billion
Demand side	Policy option 3a	Mobility schemes for entrepreneurs	Entry barriers to start up entrepreneurship in the EU	0.09 %	€12.5 billion
	Policy options 2b and 2c	Access to labour market for family migrants and asylum seekers	Hiring frictions	0.11 %	€15.3 billion
	Policy option 3c	Support Skill Mobility Partnerships – Global Skill Partnerships	Productivity gap between migrant and native workers	0.02 %	€2.8 billion
	All excess barriers/frictions on the supply side:			0.27 %	€37.6 billion

Source: Compiled by the authors.

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1. Introduction

This Annex supports the European Added Value Assessment on European migration policy and law prepared by EPRS. It complements the legal, qualitative and micro-economic analysis done by EPRS and its external contractor, by investigating the potential macroeconomic effects of a selection of EU-level policy options under consideration (see Table 2).

Each policy option is modelled as a counterfactual scenario with respect to a baseline also known as the policy status quo. A macro-economic model is used to represent this counterfactual scenario that takes into account different possible changes and feedback loops triggered by the policy option. The modelled policy options can be grouped into two blocks: options that have a direct impact on the supply of labour (worker's choices) and options that have an impact on the demand of labour (firms' choices).

Table 2: Overview of EU-level policy options

Policy option	Policy sub-options	Macro-economic assessment
1. Promote the recognition of professional qualifications		See Section 4.1.1
2. Facilitate access to regular work for TCNs already present in the EU	2a: Students	Not conducted
	2b. Family members	See Section 4.2.2
	2c. Asylum seekers and refugees	
3. Introduce new legal channels for migrants to enter the EU	3a. Mobility schemes for entrepreneurship	See Section 4.2.1
	3b. Skilled refugees' mobility scheme	Not conducted
	3c. Support Skill Mobility Partnerships	See Section 4.2.3
	3d. Promote Youth Mobility Schemes	Not conducted
	Complementary instrument: EU Talent Pool	
4. Improve worker rights and work conditions for TCNs	4a. Alignment of rights of TCNs compared with EU nationals	See Section 4.1.2
	4b. Strengthen enforcement of TCN workers' rights	See Section 4.1.3
	4c. Reduce uncertainty with respect to obtaining long-term residence status	Not conducted

Source: Compiled by the authors.

This macro-economic analysis is a collaboration between the European Added Value (EAVA) Unit of EPRS and the Joint Research Centre of the European Commission (JRC). The EAVA Unit defined the policy options and prepared related inputs for the macro-economic model. The definition of the model parameters and assumptions and the generation of the model outputs was carried out by the JRC.

2. The macro-economic modelling approach

A general equilibrium model was used to assess the macro-economic impacts of the EU-level policy options.³ This model takes into account the entire EU economy and captures both the direct and indirect effects of policy changes at the macroeconomic level. The model used is [EU-EMS](#), a dynamic stochastic general equilibrium model with neoclassical equilibrium closure, which has been developed to assess the short-term employment effects and long-term structural productivity effects of a wide range of policies, including human capital, education and innovation. Following Kancs and Lecca (2018), it is assumed that workers can have different skill levels (represented by three levels: low, medium and high) and that migrant workers and native workers face split labour markets.

The model provides results in terms of counterfactual scenarios, which are defined in terms of a set of parameters and assumptions with respect to a baseline scenario. The model generates short-, medium- and long-run estimates, but only the long-run ones are presented when looking at the impact on GDP.⁴

The main mechanism of the model turns around different policy shocks to the labour market that can be on the supply side (workers) or on the demand side (firms).

Workers, in the model, make two main decisions: the choice of education and the choice of occupation. Firms (entrepreneurs) decide whether to enter the economy and then make hiring and production decisions.

For greater details on how these two groups of actors are modelled, please refer to the forthcoming JRC technical report by Kancs et al. (2021).

³ The model is described in Ivanova, Kancs and Thissen (2019); previous EU policy assessments include among others Kancs and Lecca (2018); Ciaian, Ivanov and Kancs (2019); Cupak, Ciaian and Kancs (2021).

⁴ To obtain absolute numbers for the expected yearly GDP change, we multiplied the simulated percentage change from the baseline by the base year GDP (2019).

3. Policy options and counterfactual scenarios

The modelled policy options can be grouped into two blocks: options that have a direct impact on the supply of labour (workers' choices) and options that have an impact on the demand of labour (firms' choices). The model assumes a set of occupational frictions in the supply of labour and the demand for labour. This sub-optimal allocation entails costs in terms of untapped productivity (gains).

Labour supply: as discussed in the forthcoming JRC technical report, the model assumes that there are three types of friction that may explain a sub-optimal allocation of talent in the EU economy. These frictions are:

- Human capital frictions;
- Informal institutional frictions;
- Labour market frictions.

Labour demand: the model accounts for three types of barriers or additional costs on the firm's side:

- Entry barriers to start up entrepreneurship in the EU;
- Hiring frictions in the labour market;
- Productivity gap between migrant and native workers.

Table 3: Mapping of supply-side and demand-side frictions to EU-level policy options that are modelled in the macroeconomic assessment

	Friction/barrier	Policy option	
Supply side	Human capital frictions	Policy option 1	Promote the recognition of professional qualifications
	Informal institutional frictions	Policy option 4a	Alignment of rights of TCNs compared with EU nationals
	Labour market frictions	Policy option 4b	Strengthen enforcement of TCN workers' rights
Demand side	Entry barriers to start up entrepreneurship in the EU	Policy option 3a	Mobility schemes for entrepreneurs
	Hiring frictions	Policy option 2b	Access to labour market for family migrants
		Policy option 2c	Access to labour market for asylum seekers and refugees
	Productivity gap between migrant and native workers	Policy option 3c	Support Skill Mobility Partnerships – Global Skill Partnerships

Source: Compiled by the authors.

On the supply side of the labour market, the model decomposes the contribution of each occupational friction to untapped productivity (gains). The assessment considers three counterfactual scenarios, each of which eliminates one friction in the labour supply. The assessment then considers a combined counterfactual scenario where all excess barriers in the labour supply are reduced.

With regard to labour demand, the assessment investigates three counterfactual scenario in which each type of barrier is eliminated. The assessment also considers a combined counterfactual scenario where all labour demand-side barriers are reduced simultaneously. It is worth noting that, in this second group, entry barriers for entrepreneurs only affects migrant-owned firms, while the second and the third affect both migrant - and native-owned firms. Each policy option addresses a supply-side or demand-side friction. The mapping is presented in the table above.

3.1. Supply side of the labour market

3.1.1. Human capital frictions

In the model, the migration status of individuals affects education choices through human capital frictions. They capture both pecuniary costs (e.g. school fees or scholarships, fees for qualification recognition) and non-pecuniary factors such as potential group-level discrimination at school, social norms that make schooling more or less costly for some groups, or bureaucratic hurdles in obtaining recognition of foreign qualification. Hence, between-group differences in the cost of schooling reflect more than just discrimination in access to quality schooling: they incorporate all differences in environments across groups that affect the accumulation of human capital. This implies that for some groups per-unit education costs in a broader sense are higher than for others – which depends on the immigration status and is higher for migrants than for natives.

We model these barriers as excess monetary and non-monetary costs associated with accumulating human capital. Barriers to human capital attainment affect consumption directly by increasing the cost of education, as well as indirectly by lowering the acquired human capital.

Table 4: Main assumptions in the human capital friction counterfactual scenario

	Baseline	Human capital friction counterfactual scenario
Gap in the schooling costs, tertiary education	10%	6.1%
Gap in the schooling costs, Secondary education	7%	5.2%
Gap in the schooling costs, Primary education	4%	3.3%

Source: Compiled by the authors based on Coen-Pirani (2011), Tanaka et al. (2018) and Brücker et al. (2021). Notes: This Table presents assumptions of the human capital frictions counterfactual scenario construction. Migrant native gap in the schooling costs is computed based on Coen-Pirani (2011) and Tanaka et al. (2018) estimates. Reductions in the gap in schooling costs are computed based on Brücker et al. (2021) ('Human capital friction counterfactual' column in Table 4).

From the estimates of Coen-Pirani (2011) and Tanaka et al. (2018), we know that barriers to forming human capital are substantially higher for individuals of migrant-origin than for native-born ones. Hence, the misallocation of talent can be due to barriers to forming human capital. We therefore examine the impact of removing education cost-related excess barriers to forming human capital

for migrants. Specifically, we focus on the impact of removing barriers to recognition of previous qualifications. Prior research has found that migrant workers have lower returns to education which was acquired in the home country compared to migrants with education acquired in the EU host country (Tibajev and Hellgren 2019). One reason for this is that foreign credentials work poorly as productivity signals and risk-averse employers avoid/downgrade such workers (Chiswick and Miller 2009). A formal recognition of foreign qualifications can reduce/overcome this issue by providing a credible information about the foreign education, thus attenuating the employer uncertainty. Brücker et al. (2021) estimate that in Germany recognition raises the wage rate by 19.8 per cent relative to migrants without recognition.

Policy channels of impact in the model of Policy Option 1 'Promoting the Recognition of skills and qualifications'

Reducing/eliminating the gap between migrants and natives in the cost of education – and namely the barriers to recognition of previous learning abroad – leads to more (recognised) human capital from high-ability disadvantaged-group individuals, i.e. migrants.

3.1.2. Informal institutional frictions

In the model, the migration status of individuals affects occupation choices through occupational 'preferences'. The model allows for differences in workers' 'preferences' or social norms that drive occupation differences across groups. Under the category of 'preferences' we include a set of non-wage characteristics of occupations that may influence workers sorting into them. Characteristics of occupations can also capture both formal and informal institutions such as unionisation and social networks as well as attributes such as entry cost and language barriers that are not directly measurable in wages. For example, in occupations where formal labour market institutions do not function effectively to ensure an equal treatment and protection of all groups of employees, informal institutions often act as a substitute (Comola and Mendola 2015; Blumenstock et al. 2019).

Non-wage characteristics can both attract and exclude migrant workers from certain occupations. On one hand, informal networks may act as a safety net for individual migrants, increasing the attractiveness for occupations with dense migrant networks. These forces can distort migrants' selection into occupations away from their comparative advantage, leading to an inefficient allocation of human capital across occupations. On the other hand, there might be strong social norms against migrants working in certain high-skill occupations. These have, in turn an effect on wages.⁵

This misallocation of skills and talent is reflected in migrant overqualification, which is widespread in the EU labour market (CEPS 2021). In this counterfactual scenario, we reduce between-group differences in 'preferences' or social norms that drive occupation choice of group members to reflect the alignment in the rights of migrant workers to the rights of native workers. As a result, the prevalence of overqualification among migrant workers would decrease.

⁵ For example, if there are social norms against migrants being financial advisers, the model would indicate migrants must have been paid more to compensate for this dis-amenity.

Table 5: Main assumptions in the informal institutional frictions counterfactual scenario

	Baseline occupations			Informal institutional frictions counterfactual scenario		
	Share of high-skill migrants	Share of medium-skills migrants	Share of low-skill migrants	Share of high-skill migrants	Share of medium-skills migrants	Share of low-skill migrants
High-skill	52%	14%	5%	60%	14%	5%
Medium-skill	17%	35%	32%	15%	42%	38%
Low-skill	30%	51%	63%	26%	44%	57%

Source: Compiled by the authors based on CEPS (2021). Notes: This table presents assumptions of the informal institutional frictions counterfactual scenario. Estimates are based on LFS data. See CEPS (2021) for data and methodology description.

Policy channels of impact in the model of Policy Option 4a 'Alignment of rights of third-country nationals compared with EU nationals'

A policy strengthening the labour market rights of migrants, thus harmonizing the rights of all groups – independently of their migration status – would enforce an equal treatment of all groups of workers and indirectly reduce the role of informal institutions and social norms that prevent migrants from self-selecting into occupations according to their comparative advantages. This is expected to result in a greater matching between the skills level of migrant workers and the skills required in their occupation.

3.1.3. Labour market frictions

In the model, the migration status of individuals (migrant or native) affects education choices also through labour market frictions. Depending on the migration status, group members can experience a wage discrimination in the labour market. As a result, effective wages do not reflect the marginal product of human capital in occupations.

We model labour market discrimination as an occupation-specific wedge between wages and marginal products of labour. This 'tax' is a proxy for many common formulations of discrimination in the economics research literature (see, for example, Becker 1957; Phelps 1972; Arrow 1973). Arrow (1973) has described a worker discrimination in the labour market as 'the valuation in the market place of personal characteristics of the worker that are unrelated to worker productivity'. In the presence of negative discrimination, equally productive migrant workers are treated worse than native-born workers and vice-versa.

We assume that labour market discrimination affects all individuals of a group within an occupation equally at a given point in time. Due to discrimination in the labour market, high-ability individuals from a discriminated group may select a priori occupations with low returns to general ability. They may also alter their investment in education.

We assume therefore that labour market frictions affect the wage gap between migrants and natives. The raw (observed) wage gap has several components, including worker characteristics (e.g. education, experience), observed and unobserved productivity and sector characteristics (the gap can reflect the selection in low-pay sectors). Some studies attempt to quantify each of these components' weights on the total wage gap. Comparing workers with similar characteristics in the same sector allows to identify the part of the wage gap that remains unexplained and can be attributed to discrimination, poor enforcement of labour rights and of labour standards. We assume

that policy option 4b can reduce this unexplained part of the wage gap, which is a minor part of the observed total wage gap, by 50%.

Some studies find that this unexplained gap is quite small,⁶ while others come up with more substantial figures, such as in an intra-firm analysis on Germany (13% wage gap).⁷ A most recent paper, including several EU countries, finds that labour market frictions for migrant workers are substantial and quantitatively important, particularly in occupations with high rewards to skills: they find that the unexplained wage gap is 24.6 % in high skilled occupations, 18.3 % in medium skilled ones, and 7.5 % in low skilled ones (Cupak et al. 2021). We use this analysis as a baseline, to construct a counterfactual scenario where we reduce the excess labour market frictions for migrant workers. The scenario assumptions are reported in Table 6.

Table 6: Native-to-migrant percentage unexplained wage gap after controlling for productivity differentials (%)

	Baseline	Labour market frictions counterfactual
Wage gap high-skill occupations	24.63	12.32
Wage gap, medium-skill occupations	18.31	9.16
Wage gap, low-skill occupations	7.55	3.78

Source: Compiled by the authors based on Cupak et al. (2021). Notes: This table presents assumptions regarding the labour market frictions counterfactual scenario. Estimates are based on data from a study of income in Luxembourg. See Cupak et al. (2021) for data and methodology description.

Policy channels of impact in the model of policy option 4a: 'Strengthen enforcement of migrant workers' rights'

Due to this policy intervention, discrimination against migrants in the labour market would be reduced/eliminated and occupation-specific wedges between wages and marginal products of labour would decline, thus reducing the wage gap between migrant and native workers (column 3 in Table 6).

3.1.4. All excess barriers/frictions on the supply side of the labour market

Finally, we consider a counterfactual scenario where all three barriers/frictions on the workers' side (supply-side) of the labour market are eliminated at the same time.

⁶ Hofer et al. (2017) on Austria finds that discrimination amounts to approximately 3-5 per cent of the total wage gap. Nielsen (2004) in Denmark finds that wage discrimination is negligible for men and only significant for migrant women.

⁷ Bartolucci (2014) used detailed matched employer-employee data from Germany and find that migrants earn 13 per cent lower wages in the same firms due to discrimination, Kampelmann and Rycx, (2016) use data on Belgium and find that a collective bargaining reduces wage gap between native and migrant workers.

3.2. Demand side of the labour market

3.2.1. Entry barriers to start-up entrepreneurship in the EU

In many EU host countries, migrants are more likely to start businesses than their native-born peers (OECD 2010). This may be explained in part by positive self-selection in the migration process and by migrants' willingness to take greater risks, on average, than native-born persons. Indeed, the businesses set up by migrants make a non-negligible contribution to employment creation in EU Member States – a contribution that is being seen to grow steadily in host countries. Importantly, migrant entrepreneurs create jobs not only for their diaspora but also for the native-born workers (OECD 2010).

These benefits are all the more appealing to national and EU policy-makers striving to take advantage of migrant entrepreneurship as a strategic resource to foster economic activity and social inclusion. Therefore, EU Member States, such as Estonia and the Netherlands, are increasingly adopting or reforming immigration policies to attract migrant entrepreneurs. These targeted policies aim at selecting and attracting migrants with enough human and financial capital to make their business ventures succeed in host countries, thus contributing to the EU economic growth and competitiveness.

While on average migrants tend to set up businesses at higher rates than their native-born peers, they typically face greater obstacles to starting up their businesses (Desiderio 2014). Migrant entrepreneurs face higher costs of bureaucracy (screening procedures, tax-related requirements, labour/social security-related requirements, safety and health requirements, environment-related requirements, visas and entry/work permits, etc.), and more difficulty getting access to credit, and other services. Because of the formal and informal barriers to migrant entrepreneurship, only a tiny fraction of migrant entrepreneurs enters their EU host country on a permit specific to migrant entrepreneurship. The majority of migrants who set up businesses in their host countries are initially admitted through other migration streams, such as for employment or study (OECD 2010). However, a secure resident status is a fundamental prerequisite for migrant business development and competitiveness. Migrants on short-term temporary visas are less likely to be granted credit from official financial institutions and may experience greater difficulties when engaging with suppliers and recruiting talented employees, compared with long-term or permanent residents.

Under this policy, we explore whether the regulations governing the admission of migrant entrepreneurs, status changes from employment and study visas to entrepreneurship permits, and the path to permanent residence may have a substantial influence over the dynamics of migrant entrepreneurship in the EU. In this counterfactual, we reduce excess fixed entry barriers for migrant entrepreneurs. As a result, the number of migrant entrepreneurs that enters the EU host country on a permit specific to migrant entrepreneurship increases.

Table 7: Number of migrant entrepreneurs that would enter the EU on a permit specific to migrant entrepreneurship. Start-up visas per year

	Scenario: The NL scheme is replicated in all other Member States
Total visas year 1	4 080
Total visas year 5	9 828
Total visas year 10	17 029

Source: authors' elaboration.

To simulate the creation of an EU-wide entrepreneurship visa scheme, this counterfactual scenario is based on the Dutch start-up visa programme. The number of start-up visas in the Netherlands is low, but increasing over time both in terms of numbers (14 to 92 between 2015 and 2019) the share of total work permits (0.105 % to 0.441 % between 2015 and 2019). In 2015-2018, there were on average 16 121 new small enterprises (4 or fewer employees) in the NL – start up visas in the NL in 2018 represented 0.57 % of this figure. To approximate the EU start-up visa policy option, we apply the 0.57 % share to other Member States to reach 4 080 start-up visas in the EU in year 1. We then assume that it increases over time and gets to 2 % and remains stable at that value. The result is shown in Table 7 above.⁸

Policy channels of impact in the model of policy option 3a: 'Mobility schemes for entrepreneurship'

The policy option would provide an EU-wide scheme for entrepreneurship visas, thus reducing the entry barriers faced by migrant entrepreneurs.

3.2.2. Hiring frictions for asylum seekers and family migrants

This policy option would result in reducing costs for firms in hiring workers, and especially workers who are migrants for family reasons and as asylum seekers.

Specifically, we ease firms' access to non-native labour stemming from migrant family members and asylum seekers, reducing in such a way the ex-ante uncertainty over migrant labour hiring. There is indeed evidence that asylum seekers, refugees and migrants for family reasons face barriers to finding employment and face higher risk of being unemployed (CEPS, 2021).

The cost reduction in hiring workers among non-labour migrants applies to both native-owned and migrant-owned firms. Given that the share of migrant workers hired in migrant firms is considerably higher than the migrant employee share in native firms, we expect that migrant entrepreneurs will benefit more from reducing hiring frictions with respect to migrant family members and asylum seekers. Indeed, hiring barriers in the baseline are higher for migrant entrepreneurs, who face not only greater obstacles to starting up but also expanding their businesses compared to their native-born peers (Desiderio 2014). As a result, while over-represented in the self-employment, migrant entrepreneurs are under-represented among growth-oriented business entrepreneurs compared to native businesses because of greater hiring frictions.

Table 8: Number of migrant family members and asylum seekers that become legally employable in the EU

Group	Restricted rights to work (percentage in a skill group among overqualified, unemployed or inactive)
Low skilled	126 589
Medium skilled	98 988
High skilled	139 604

Source: Compiled by the authors based on CEPS (2021).

⁸ A more conservative scenario can be constructed by assuming that only Member States that already have a similar programme will have this progression. We do not show it here since in the final results we will present ranges around the estimate of the main scenario as a sensitivity check.

We consider that the new workers potentially entering the labour market are, among all family migrants and asylum seekers, those who are unemployed or inactive in the status quo, or who report over-qualification, and who, at the same time, declare facing restrictions in job search. The final number obtained is displayed in Table 8.

Policy channels of impact in the model of policy options 2b and 2c: 'Facilitated access to regular work for family migrants and asylum seekers'

This combination of policy options would reduce hiring frictions for TCN who migrated to the EU for family reasons or as asylum seekers. This increases employed labour (from these categories of migrants) in the EU labour market.

3.2.3. Productivity gap between migrant and native workers

Prior research has found that migrant workers have lower returns to education which was acquired in the home country compared to migrants with education acquired in the EU host country (Tibajev and Hellgren 2019). As a consequence, education, training and experience gained in the host country reduce the native-migrant productivity gap and contribute to improving labour market outcomes of migrants. Similar arguments can apply to education and training provided by host countries in migrant home countries. Under the Skill Mobility Partnerships (Global Skill Partnerships model⁹), potential migrants are first trained in their home countries according to specific EU labour market needs. Subsequently – after having undergone training comparably to native workers in host countries – they receive the opportunity to enter the EU labour market.

According to Cupak et al. (2021) estimates, migrant workers have a productivity disadvantage with respect to native workers. The provided training is expected to reduce this gap in productivity. To model a reduction in the productivity gap between native and migrant workers, in this counterfactual scenario we eliminate this gap of those workers that are newly trained and arrive in the EU under the Skill Mobility Partnership programme. These newly trained migrants are therefore as productive as native workers.

Via the Skill Partnerships, they enter the labour market in those sectors of the EU economy that are experiencing a high labour demand and enter the production process both in native- and migrant-owned firms.

Table 9: Number of EU-trained in migrant-home countries, total for the EU by skill level

	projected numbers if SP covered 10% of base-year vacancies per year
Low skilled	108 423
Medium skilled	72 021
High skilled	14 704
Total	195 148

Source: Compiled by the authors based on data from Eurostat and the Center for Global Development database on Skill Partnerships¹⁰.

The policy option is expected to facilitate the creation of legal migration pathways between EU Member States and selected partner countries, focusing on specific sectors and providing training

⁹ The model followed is the one of Global Skill Partnership, which aims to increase training and education together with labour mobility. Destination countries finance training in host countries both for workers who will migrate and for workers who will stay in the country of origin labour market. This second aspect (the 'home' track) cannot be modelled here (for GSP see [Home - Global Skill Partnerships \(cgdev.org\)](https://gsp.cgdev.org/)).

¹⁰ The database can be found at <https://gsp.cgdev.org/>.

in the country of origin. The scenarios assume that a share of 10% of unfilled vacancies¹¹ of these selected sectors are filled through these legal pathways. The selected sectors are identified by reviewing existing Skill Partnerships¹² and include: agriculture, forestry and fishing, industry and construction, accommodation and food service activities, information and communication, human health and social work activities. The distribution across skill levels is also extrapolated by the existing partnerships in EU Member States.

We also account for all education and training related costs that are financed by EU host countries in migrant home countries. The necessary revenue for these training costs is raised through value-added taxes in the EU. Fixed costs are the costs of implementation, staffing, etc. based on existing programmes, divided by the number of expected beneficiaries. Training costs are the estimated cost per person. The costs are extrapolated from the available data on the existing programmes.

Table 10: Costs of training provided by the EU in migrant home countries per person, €

	Training costs	Fixed costs	Total
Low=skill	3 257	51.63	3 308.63
Medium-skill	3 257	157.29	3 414.29
High-skill	1 400	63.69	1 463.69

Source: Compiled by the authors based on Clemens et al. (2019) and Dempster et al, forthcoming.

Policy channels of impact in the model of policy option 3c: 'Skill Mobility Partnerships/Global Skill Partnerships'

This policy option would reduce the productivity gap between migrants and native workers, by providing training to migrant workers and ensuring legal migration pathways. These workers would be hired in targeted sectors where there is excess labour demand.

3.2.4. All excess barriers/frictions on the demand side of the labour market

The last counterfactual scenario we consider is one where we remove all excess barriers on the labour demand side, i.e. for firms. These are barriers to entry for migrant entrepreneurs, barriers to hiring migrants who did not enter the EU for employment reasons, but for family and asylum-seeking motives, and the productivity gap between migrants and native workers.

¹¹ Eurostat variable jvs_q_nace2. Data on Italy and France are missing and are estimated using the average ratio between vacancies and working age population.

¹² Mapped in <https://gsp.cgdev.org/>.

4. Counterfactual analysis results

4.1. Reduction in barriers on the supply side of labour market

We apply the estimated model to measure the changes in barriers to occupational choice facing migrants in the EU. We model three forces that may cause individuals to choose occupations where they do not have a comparative advantage: human capital frictions, informal institutional frictions and labour market frictions (see Section 3).

Apart from quantifying the various types of barriers faced by migrant workers, the advantage of the adopted conceptual framework is that it allows us to evaluate the aggregate effects of counterfactual affirmative action policies in a general equilibrium. To identify the effects separately by policy type, we evaluate the impact of four such policies that sequentially eliminate the excess barriers faced by migrant workers. This exercise allows us to identify the barriers that are most consequential for migrant-specific outcomes, occupational-level outcomes and aggregate outcomes for the EU economy, and to identify the complementarities between the reduction of each barrier or 'friction'.

Table 11: Counterfactual analysis results: percentage changes from baseline. Supply side of the labour market

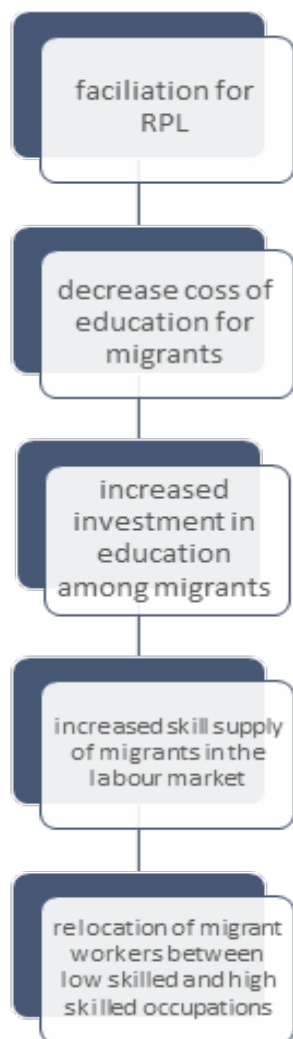
	Human capital frictions	Informal institutional frictions	Labour market frictions	All frictions
<i>Panel A: Migrant outcomes</i>				
Education, migrants	7.73	1.93	4.15	15.61
	[5.02, 10.67]	[1.17, 2.57]	[2.86, 5.68]	[9.52, 20.44]
GDP, migrant worker	8.29	4.60	12.69	30.46
	[4.97, 11.27]	[3.03, 6.43]	[8.12, 16.49]	[20.1, 42.03]
<i>B: Aggregate outcomes</i>				
GDP, worker	0.11	0.07	0.14	0.53
	[0.06, 0.14]	[0.04, 0.09]	[0.08, 0.18]	[0.32, 0.69]
<i>C: Occupational outcomes</i>				
Real wage, high-skill occupations	0.29	0.16	0.38	0.89
	[0.19, 0.39]	[0.1, 0.21]	[0.23, 0.5]	[0.58, 1.23]
Real wage, medium-skill occupations	0.68	0.33	0.65	1.47
	[0.41, 0.95]	[0.23, 0.44]	[0.45, 0.9]	[0.92, 2.01]
Real wage, low-skill occupations	1.68	0.90	2.38	4.28
	[1.16, 2.22]	[0.54, 1.23]	[1.47, 3.14]	[2.91, 5.65]
Human capital, high-skill occupations	2.38	0.81	0.93	4.10
	[1.45, 3.26]	[0.49, 1.07]	[0.55, 1.29]	[2.62, 5.57]
Human capital, medium-skill occupations	1.69	0.60	0.97	3.93
	[1.16, 2.26]	[0.36, 0.81]	[0.6, 1.29]	[2.67, 5.34]
Human capital, low-skill occupations	-0.58	-0.23	-0.44	-1.65
	[-0.72, -0.39]	[-0.3, -0.16]	[-0.56, -0.29]	[-2.18, -1.13]

Source: Compiled by the authors. Notes: This table presents counterfactual analysis results for reductions in human capital frictions (column 2), informal institutional frictions (column 3), labour market frictions (column 4) and all frictions combined (column 5). Numbers in [parenthesis] are sensitivity analysis results for lower (–50%) and upper (+50%) magnitudes of the occupational friction reductions in the four counterfactuals.

4.1.1. Policy option 1: Promoting the recognition of skills and qualifications

In these counterfactuals, we seek to understand the impacts of reducing *human capital frictions*. In particular, we explore the impact of lower barriers to the recognition of previous learning abroad (RPL).

Figure 1: Impact channel PO1



Source: Prepared by the authors.

Column 2 in Table 11 above reports the expected changes driven by the reduction of barriers to human capital accumulation. Impacts can be on migrant workers (panel A), at a broader occupational level (panel B), and at the aggregate level of the EU economy (panel c). In this counterfactual, we hold informal institutional frictions for a migrant's occupational choice and labour market frictions fixed at their baseline level. The mechanics of the impact of this policy option is outlined in Figure 1 above.

The overall occupational share (panel C, column 2 in Table 11) is obtained by aggregating the optimal choice across workers. Lower human capital frictions trigger more migrant workers to acquire/recognise education. **The aggregate human capital increases in medium- and high skill occupations** (1.69 and 2.38 per cent, respectively). In contrast, the employed human capital decreases in low-skill occupations (–0.58 per cent), as migrant workers are less likely to end up in low-skilled jobs when their qualifications are higher; the entry of some native workers in low-skill occupations does not fully offset this effect. **The increase of migrant workers in high-skill occupations exercises a downward pressure on wages which however is more than compensated by an increase in the average productivity in these occupations** (the net effect on wages is positive, about 0.29 per cent), whereas the outflow of migrant workers from low-skill occupations exercises an upward pressure on wages (1.68 per cent).¹³ **The long-run aggregate impact on the GDP would be 0.11 per cent or €15.3 billion per year.**

Migrants accumulate significantly more skills (7.73 per cent) and the aggregate output per migrant worker increases substantially (8.29 per cent) – panel A, column 2.

Still, the structure of the economy does not change substantially. As more structural parameters do not change, labour market frictions are fixed at their baseline level in this counterfactual and informal institutional frictions are still in place, recognition of previous learning alone does not have fundamental effects in the labour market.

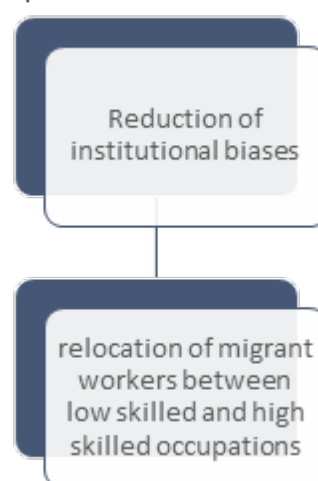
¹³ Note that in the model, the occupational distribution is driven by relative returns and not absolute returns: macroeconomic shocks that change wage for all occupations have no effect on the occupational distribution.

4.1.2. Policy option 4a: Alignment of rights of third-country nationals compared with EU nationals

The objective of these counterfactuals is to quantify both the importance of *informal institutional frictions* for a migrant's occupational choice, as well as the impact of these drivers of occupational choices on the EU economy as a whole. In particular, our counterfactual analysis explores how the EU economy would differ if migrants did not self-select into what could be called 'traditional migrant occupations', i.e. occupations where migrants are over-represented because of informal institutional factors that are described in Section 3.1.2. In this counterfactual, differences between groups in occupational choice are driven by differences in human capital frictions and labour market frictions, while informal institutional frictions are eliminated. The mechanics of impact of this policy option is outlined in Figure 2 below.

We evaluate the effects of a number of channels that link migrant workers to traditional migrant occupations in the model. First, the sorting of migrant workers in these occupations can distort migrants' selection into occupations away from their comparative advantage, leading to an inefficient allocation of human capital across occupations. Second, the sorting of migrant workers into 'traditional migrant occupations' can enable the formation of social networks in traditional migrant occupations and the transfer of occupational knowledge and human capital among peers. These two channels shape traditional migrant occupations in ways that can lastingly affect migrant workers' occupational choices and – in the presence of network effects and knowledge spillovers – can create a '**path dependence**' well beyond migrant workers' own preferences: even if migrants no longer feel tied to the traditional migrant occupations, they might nevertheless select into them to take advantage of the productivity effects of dense knowledge networks and of informal institutions such as social norms. Unlike the distortionary effects on the allocation of human capital (the first effect), the aggregate impact of peer-to-peer knowledge sharing within migrant networks (the second effect) may be positive. Among others, they may contribute to explaining the remarkable endurance of occupational concentration of migrant labour in the EU.

Figure 2: Impact channel PO 4a



Source: Prepared by the authors.

In this counterfactual, we evaluate the direct effect of eliminating the institutional factors that drive migrants into some traditional migrant occupations. The impact on the aggregate economy is relatively small (the aggregate output increases by **0.07 per cent or €9.8 billion per year**) (panel B, column 3 in Table 11). The output per migrant worker raises by 4.60 per cent (panel A). The **impact on wages in all occupations is positive though small** (0.16 to 0.90 per cent) – panel C, column 3. Human capital increases slightly in high- and medium-skill occupations (0.81 and 0.60 per cent, respectively), whereas it decreases insignificantly in low-skill occupations (–0.23 per cent).

There are several reasons why the direct impact of removing the sorting in traditional migrant occupations is relatively small. First, the magnitude of the informal institutional frictions parameter – which captures occupational choice probabilities and is based to the existing data on migrant

concentration across occupations – is small relative to the variation in other structural parameters of the model, such as the elasticity of substitution between migrant and native workers. The basic structure of the economy therefore remains roughly unchanged when the network bias in occupational preferences is eliminated.

Employment shares drop by less than one percentage point for the most affected occupation. This result implies that workers in ‘traditional migrant occupations’ in the model get replaced by other (similar) workers, thus keeping the occupational structure and the aggregate output nearly unchanged, even if the output per migrant worker increases notably by 4.60 per cent in the aggregate. Despite the relatively small aggregate effects, we see improvements in the migrant workers’ selection based on occupation-specific productivity and general ‘ability’¹⁴ as high-ability migrant workers increasingly select into occupations with high returns to ability, i.e. medium and high skilled occupations. However, these gains are partially offset by productivity losses in ‘traditional migrant occupations’ where migrant-networks are strongest, which reduces network productivity gains and peer-to-peer knowledge sharing in the short-run (see Figure 4 in Section 4.5 for short-run dynamic effects). The overall impact remains positive, though small.

4.1.3. Policy option 4b: Strengthen enforcement of migrant workers' rights

In the next set of counterfactuals, we seek to understand the impacts of reducing *labour market frictions*. As in the previous two counterfactuals, we hold the other channels – human capital frictions and informal institutional frictions for a migrant's occupational choice – fixed at their baseline level.

The mechanics of impact of this policy option is outlined in Figure 3. Column 4 in Table 11 reports the expected relative changes driven by reductions of labour market discrimination on the different skill levels.

In the baseline, we are observing that the labour market discriminates against migrant workers in certain (particularly high-skill) occupations and only the most talented migrant workers chose and manage to get in these occupations. Conversely, the average productivity of native workers in high-skill occupations is lower in the presence of labour market discrimination against migrant workers (baseline).

The reduction in labour market discrimination drives more migrant workers into high-skill occupations, which has a direct effect of a raising GDP per worker in high-skill occupations and simultaneously lowering GDP per worker in low-skill occupations. On net, however, declining labour market frictions for migrant workers substantially increase the sum of output per worker across all occupations (12.69 per cent for migrant workers). **The long-run aggregate impact on the GDP would be 0.14 per cent or €19.5 billion per year.**

Labour market friction facing migrant workers affects output via the return to investment in human capital. Migrant workers, not expecting anymore to be discriminated against in high skilled occupations, have a greater incentive to invest in education. As in human capital frictions and informal institutional frictions counterfactuals, human capital is augmented in high- and medium-skill occupations (0.93 and 0.97 per cent, respectively), whereas it decreases slightly in low skill occupations (–0.44 per cent).

As in other counterfactuals, individuals increasingly sort according to where productivity and wages are higher. Still, average earnings for migrants as compared to natives differ because of the other two barriers – human capital frictions and informal institutional frictions. The reduction in labour market discrimination accelerates sorting according to individual comparative advantages, and

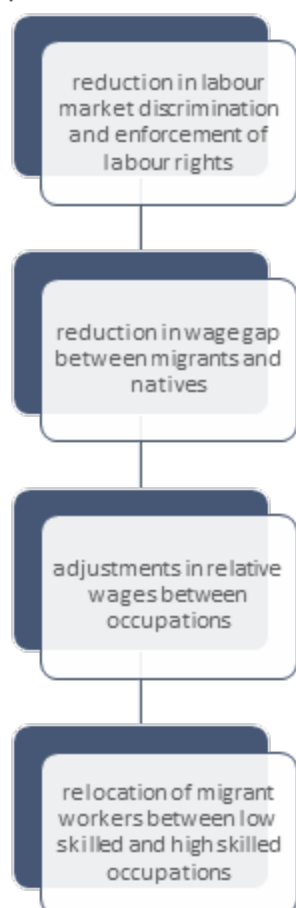
¹⁴ The variable ‘ability’ in the model captures the ‘initial’ heterogeneity among workers.

drives more migrant workers away from **low-skill** occupations, exercising an **upward pressure on wages** (2.38 per cent).

4.1.4. Combination of policy options: Removing all frictions

Finally, we use the general equilibrium setup to undertake a counterfactual analysis where we measure the aggregate effects of the reduction in all occupational barriers facing migrant workers.

Figure 3: Impact channel PO 4b



Source: Prepared by the authors.

Specifically, in this counterfactual we reduce all excess barriers to occupational choice – human capital frictions, informal institutional frictions and labour market frictions. Column 5 in Table 11 reports main results on GDP per worker, schooling, wage and human capital by occupation type.

Overall, the aggregate impacts are larger – as expected. For example, **the long-run aggregate impact on the GDP would be 0.53 per cent or €74.0 billion per year**. Also **positive wage effects** are more pronounced than in counterfactuals with one policy channel only adjusting, ranging from 0.89 per cent in high-skill occupations to 4.28 per cent in low-skill occupations.

The effect on migrant's wages is complex. The average wage for migrants working in a given occupation depends on two forces in the model that generate differences in wages across occupations for individuals: productivity and preferences.¹⁵ Wages are expected to be higher on average in occupations where schooling is especially rewarding and where there is a 'disutility' to be compensated for. However, average earnings of migrant workers are not automatically higher in occupations where migrant workers face less occupational barriers (in the model, lowering these

barriers leads also to more workers entering these occupations, including workers with lower productivity). The overall effect depends on the skill distribution.

Reducing all excess barriers has important distributional effects on human capital across occupations. Indeed, the propensity of migrant workers to be employed in an occupation (relative to native workers) depends on three occupation-specific characteristics: relative frictions, relative talent, and the average wage gap with respect to native workers. The wage gap itself is a function – together with workers' ability – of the distortions faced by migrant workers, and the return to skills in all occupations. Whereas reducing human capital frictions, informal institutional frictions and labour market frictions increases the employed human capital in high-skill occupations (4.10 per

¹⁵ As discussed in Section 3 and in the forthcoming JRC technical paper, we consider all factors other than productivity, which affect occupational choice, including informal institutions and social norms, as 'preferences'.

cent), it has the opposite impact on low-skill occupations (–1.65 per cent). Overall, migrant workers are expected to better exploit their talent and comparative advantages, some of them moving out from low skilled occupation towards medium and high skilled occupations. The occupational sorting for all groups of workers depends on wages (per each level of 'talent', or ability). Occupations where the wage is high, attract more workers of all groups. Occupational frictions (e.g. barriers in accumulating human capital or discrimination) lower the share of workers from the group that suffers most the frictions – in our case migrant workers.

The **average productivity per migrant worker overall increases**, though this is not homogeneous across occupations. Given that individuals have heterogeneous abilities, the sorting of workers across occupations (entry/exit of workers) in the model affects the average productivity of workers in an occupation. In the presented counterfactual scenarios, the barriers faced by migrant workers in high-skill occupations decline, and this has -among others- also the effect that less talented migrant workers move into high-skill occupations (as occurs for natives in the baseline/status quo) and thus lower the average productivity of migrant workers in high-skill occupations.

4.2. Reduction in barriers on the demand side of the labour market

We then apply the estimated model to measure the changes in barriers or additional costs facing firms in the EU and to evaluate the aggregate effects of counterfactual affirmative action policies in a general equilibrium. We model three forces that may lead to sub-optimal outcomes: entry barriers to start up entrepreneurship in the EU, hiring frictions in the labour market and productivity gap between migrant and native workers.

Table 12: Counterfactual analysis results: percentage changes from baseline. Demand side of the labour market

	Entry barriers	Hiring frictions	Productivity gap	All demand-side barriers
<i>Panel A: Entrepreneurship of migrants, wages and productivity</i>				
Migrant firms, fraction	1.14	3.65	0.55	5.60
	[0.78, 1.48]	[2.29, 5.1]	[0.34, 0.72]	[3.47, 7.56]
Real wages, native	0.28	1.08	0.03	1.42
	[0.17, 0.36]	[0.64, 1.48]	[0.01, 0.03]	[0.9, 1.88]
Real wages, migrants	0.46	2.61	0.05	2.89
	[0.54, 0.29]	[3.6, 1.69]	[0.06, 0.03]	[3.52, 1.98]
Average firm productivity, native-owned	0.02	0.78	0.00	1.02
	[0.01, 0.02]	[0.54, 1.04]	[0, 0]	[0.66, 1.35]
Average firm productivity, migrant-owned	-1.24	-2.51	0.00	-3.17
	[-1.54, -0.86]	[-3.07, -1.69]	[0, 0]	[-3.87, -2.21]

Entry thresholds for firms, native-owned	0.00	0.11	0.00	0.13
	[0, 0]	[0.07, 0.14]	[0, 0]	[0.08, 0.16]
Entry thresholds for firms, migrant-owned	-0.28	-0.50	0.00	-0.67
	[-0.17, -0.37]	[-0.31, -0.67]	[0, 0]	[-0.42, -0.95]
<i>Panel B: Productivity and welfare</i>				
Aggregate productivity	0.12	0.14	0.02	0.29
	[0.07, 0.16]	[0.09, 0.18]	[0.01, 0.02]	[0.17, 0.37]
GDP, worker	0.09	0.11	0.02	0.27
	[0.05, 0.11]	[0.07, 0.14]	[0.01, 0.02]	[0.17, 0.35]

Source: Compiled by the authors. Notes: This table presents counterfactual analysis results for reductions in entrepreneurship entry barriers (column 2), hiring frictions (column 3), reduction in the productivity gap between migrant and native workers (column 4) and all excess demand-side barriers combined (column 5). Numbers in brackets are sensitivity analysis results for lower (–50%) and upper (+50%) magnitudes of the entrepreneurship barriers reductions in the four counterfactuals.

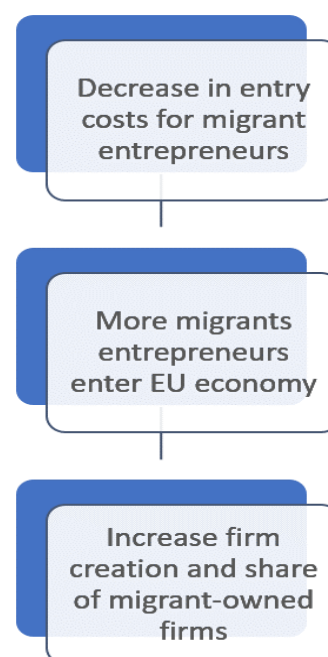
4.2.1. Policy option 3a: Entry barriers to start-up entrepreneurs

From the baseline estimations we know that entry costs are substantially higher for migrant- than for native-owned firms. We therefore examine the impact of removing legal excess fixed costs for migrant-owned firms. Panel A in Table 12 reports the impact of legal entry barrier reduction on migrant entrepreneurship and prices. According to column 2, this policy **increases the fraction of migrant-owned firms** by 1.14 %, which is a substantial increase. **Real wages** for migrant workers also **increase** by 0.46 %, whereas those of natives increases by 0.28% in the long run.

As regards productivity, while the average firm productivity of native entrepreneurs changes very little (0.02 % compared to the baseline), the average productivity of migrant entrepreneurs decreases by 1.24 % per cent. Though counter-intuitive at first, these effects can be rationalised by the following two rows which show, for native as well as for migrant entrepreneurs, the productivity of the marginal entrepreneur (the 'last' firm that enters the market, since it is productive enough to overcome the fixed costs, i.e. the entrepreneur who makes zero profits in expectation, after paying the fixed cost of entry that is what is called the 'entry threshold'). In the baseline, because of the excess costs faced by migrant-owned

firms, the marginal migrant entrepreneur has to be considerably more productive as his/her native counterpart. The removal of the excess fixed costs allows more migrant entrepreneurs to enter, presenting native entrepreneurs with more competition. Accordingly, the productivity of the

Figure 4: Impact channels for policy option 3a



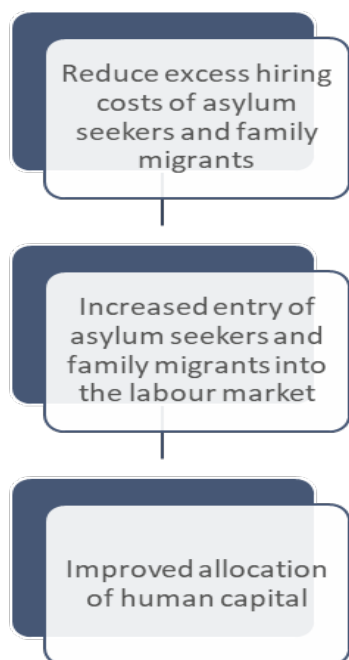
Source: Prepared by the authors.

marginal migrant (native) entrepreneur decreases (increases). This implies that the average migrant (native) entrepreneur is now less (more) productive. Moreover, the set of migrant entrepreneurs who now enter are more productive than their native counterparts, which translates into **aggregate productivity gains**, as shown in Panel B. The overall increase in the aggregate productivity is 0.12 %, and **GDP per worker increases by 0.09 %, that is, GDP is expected to increase by €12.52 billion per year.**

4.2.2. Policy options 2b and 2c: Hiring frictions for asylum seekers and family migrants

According to our counterfactual analysis, hiring frictions of migrant labour are substantial and quantitatively important, for both migrant-owned firms and native-owned firms. To investigate the

Figure 5: Impact channels for policy option 3a



Source: Prepared by the authors.

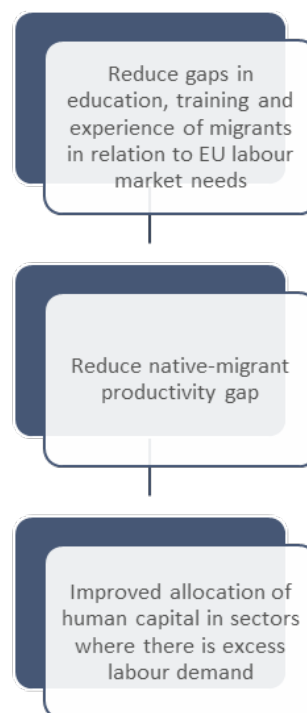
impact of reducing legal hiring barriers for migrant family members and asylum seekers, we construct a counterfactual where we reduce the excess hiring costs for migrant labour, which becomes legally 'employable' in the EU. As reported in column 2 in Table 12, the **fraction of firms that are migrant-owned increases** by 3.65 %; this change, indeed, is expected to have an especially positive impact on the establishment and the start of production of migrant-owned firms. Further, **real wages for both native and migrant workers increase** noticeably by 1.08 % and 2.61 % respectively, suggesting that migrant workers gain relatively more than native workers. An improved allocation of human capital according to relative comparative advantages is the main driver of the positive effect. Finally, the average productivity of native-owned (migrant-owned) firms increases (decreases) by 0.78 % (-2.51 %). This translates into a 0.14 % median **increase** across all EU Member States in the **average productivity**, and a **0.11 % increase in the GDP per worker or €15.30 billion per year** of overall GDP gain for the EU economy. Overall, these

counterfactual results suggest that removing hiring barriers for migrant labour implies substantial gains in both productivity and GDP in the EU. These gains are slightly higher than those realised by reducing entry barriers to start up entrepreneurs.

4.2.3. Policy option 3c: Productivity gap between migrant and native workers

As explained in the counterfactual scenario construction in section 3.2.3, under this policy option the EU is providing a targeted training to migrants in their home countries, after which the newly trained migrants are matched with those parts of the EU economy where an excess demand for labour is present. Column 3 in Table 12 reports the counterfactual analysis results of this process. As reported in Panel A, this policy increases the median fraction of migrant-owned firms by 0.55%. The fraction of migrant-owned firms increases because on average migrant entrepreneurs hire higher share of migrant workers than native entrepreneurs. This policy has a rather **small, but positive effect on the real wage of native and migrant workers** (0.03 % and 0.05 %, respectively), and the same on the aggregate productivity and GDP. The long-run aggregate impact on GDP per worker is expected to be **of about 0.02 %, or €2.78 billion per year** of additional GDP in the EU economy. These small impacts are mainly driven by the conservative assumption that the inflow of newly trained migrant labour under this policy option would be relatively low (Table 9). A larger inflow would lead to greater impacts. An alternative way of constructing the scenario is to extrapolate the potential number of newly trained labour migrants from the experience of Germany,¹⁶ that is, those Member States that currently run the more sizeable Skill Partnership programmes. This extrapolation, weighted on the basis of working age population, leads to figures that are a bit higher i.e. a **0.03 % increase in GDP per worker**. Real wages are expected to increase by 0.08 % for migrant workers and by 0.05 % for native workers and aggregate productivity by 0.03 %.

Figure 6: Impact channels for PO3a



Source: authors' elaboration

4.2.4. All excess barriers on the demand side of the labour market

The last counterfactual we consider is one where we reduce all excess barriers on the demand side of the labour market, i.e. excess barriers on the firms' side (though we do not change anything in cases where migrant entrepreneurs have a relative advantage vis-à-vis their native counterparts). Policy option 3a directly benefits migrant-owned firms, while the two others benefit all firms, with greater impacts on migrants-owned. Therefore, reducing all these barriers implies that **migrant-owned firms** now form a higher share of firms in the EU, with a 5.60 % increase in firms in the EU economy now owned by migrant entrepreneurs (Column 4 in Table 12).

Real wages for both native and migrant workers increase significantly by 1.42 % and 2.89 % respectively. The larger wage gains for migrant relative to native workers arise in our model because the supply of migrant workers is exogenous (it is fixed, apart from the described exogenous changes in policy counterfactuals 2b&2c and 3c). Hence, as demand for migrant workers increases (due to

¹⁶ Discounting the fact that the biggest Skill Partnerships agreements that were initially established are with the EU Member States, and therefore fall in intra-EU mobility options (see [Home - Global Skill Partnerships \(cgdev.org\)](https://www.cgdev.org/home-global-skill-partnerships))

the increased entry of migrant entrepreneurs), migrant wages have to increase by more than native wages to match demand with supply. This is an assumption that can be relaxed and assume that the supply of migrant work responds to wage increases, thus mitigating the wage gains identified here. (See JRC technical report, Kanacs et al, 2021).

The average productivity of native-owned (migrant-owned) firms increases (decreases) by 1.02 % (-3.17 %) (Column 4 in Table 12). However, the marginal migrant entrepreneurs who now enter the economy are on average more productive than the native entrepreneurs who exit (Column 4 in Table 9). This implies that overall, there is an **increase in the aggregate productivity** of the economy (Panel B). The overall increase in the EU in the aggregate productivity is 0.29 %. The long-run aggregate impact on the GDP would be **0.27 per cent or €37.55 billion per year**.

4.3. Sensitivity analysis

In the construction of policy scenarios choices had to be made that could be subject to discussion, For the sake of simplicity and readability, each scenario corresponds to a policy option and no alternative scenarios have been constructed. At the same time, to illustrate the uncertainty around the results, a range has been constructed around the policy shock: we indeed modelled a +50 % and -50 % of each policy change, which is represented by the figures in brackets in Tables 11 and 12.

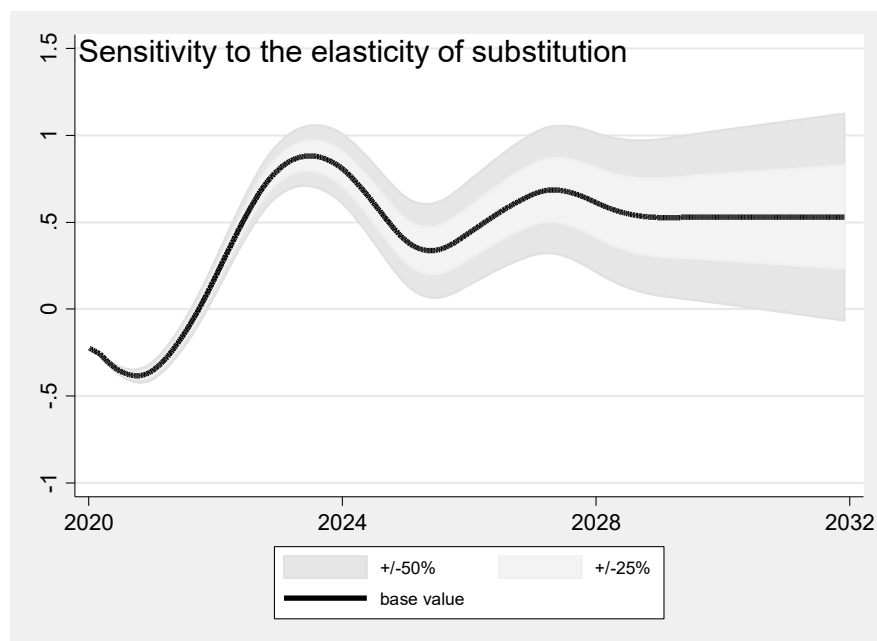
A key parameter in the analysis of foreign talent allocation is the elasticity of substitution between migrant and native labour. To better understand the implications of this parameter on the counterfactual analysis of occupational frictions, we detail the choice of baseline parameter values, and undertake a sensitivity analysis with respect to the substitutability between migrant and native workers.

In the underlying theoretical model, migrant and native workers are imperfect substitutes in the production function. To quantify this substitutability in the model, we need the elasticity of substitution between migrant and native labour by occupation. The existing literature has not brought a consensus on what is the right magnitude of the elasticity of substitution between natives and migrants, though.

One of the few studies on substitutability between migrant and native workers using European data is Manacorda et al. (2012). The authors find an imperfect substitutability between natives and migrants in the UK with the elasticity of substitution ranging between 5.0 and 7.8, depending on the skill level and time spent in the host country. Ma (2020) uses data on USA workers in the science, technology, engineering, and mathematics (STEM) occupations, by allowing the elasticity of substitution between natives and migrants to vary across occupations. Extending the setup in Manacorda et al. (2012) to better capture the asymmetric effects of skilled immigration across occupations, Ma (2020) generates unbiased incentives of occupational mobility, eventually allowing the model to evaluate the effect of selective immigration policies. The estimates indicate that skilled native and migrant workers are complements in STEM occupations (elasticity of substitution 1.3).

Based on these literature findings, we choose the elasticity of substitution between migrant and native labour 1.3 in high-skill occupations, 5.0 in medium-skill occupations and 7.8 in low-skill occupations as our baseline values. Given that the literature does offer robust elasticity estimates at the occupational classification used in this study, we explore the robustness of our results to alternate values of the elasticity of substitution.

Figure 7: Sensitivity of the results (GDP) to the elasticity of substitution between migrant and native workers



Source: Compiled by the authors.

Figure 4 shows the sensitivity of the results (GDP per worker) to the elasticity of substitution between migrant and native workers. When the elasticity of substitution between migrants and natives is higher/lower (+25 %, +50 %), the effect of reduced occupational frictions for migrants on native wages is exacerbated. While it may appear that our results are quite sensitive to changes in the elasticity of substitution, it should be noted that we are assuming that quantities of labour supply are exogenous. The augmented supply of migrant human capital reduces the demand for native workers within the same occupations and the relative wages of native workers fall. With a lower elasticity of substitution (–25 %, –50 %), the competition between migrant workers and with native workers is further attenuated when occupational market frictions facing migrants fall.

As noted by Ma (2020), workers are heterogeneous and equipped with different skills, while jobs have different task contents or work activities. Using O-NET data, Ma (2020) provides evidence that there exists a task specialisation of foreign and native workers within occupations. Highly skilled migrant workers specialise in occupations demanding quantitative and analytical skills, whereas their native-born counterparts specialise in occupations requiring interactive and communicative skills. Indeed, we observe that under an increased complementarity, the skill rental rate (marginal product) for native workers increases with an increase in migrant human capital.

Just like any other analysis, this modelling exercise has a number of limitations too. In this section, we addressed some uncertainties, notably the uncertainty around the point-estimate (for which a range is constructed) and the uncertainty around one of the main parameters of the model (the elasticity of substitution). More uncertainty exist, for example in the way the shocks to the model have been constructed and on the internal assumptions of the model, e.g. on price and wage flexibility (for greater details, see JRC technical report, Kanacs et al, 2021).

'When interpreting the results, it is moreover important to keep in mind that the presented counterfactual simulations are not able/intended to quantify the exact magnitude of the expected policy impacts. Instead, they provide the direction of the expected changes and the mechanics behind the complex interdependencies in a general equilibrium perspective.

5. Conclusions

In this study, we demonstrate that EU action could generate gains in productivity and GDP through the following mechanisms:

- Lowering the occupational barriers faced by migrant workers with a focus on education costs, informal institutions that affect the choice of occupations, and discriminatory wage setting;
- Lowering the barriers for migrant workers to access the EU labour market and the barriers that firms face in hiring them with a focus on the productivity gap (in the case of Global Skill Partnerships) and on other frictions pertaining to specific groups - family members, asylum seekers and refugees; and
- Reducing entry costs for migrant start-up entrepreneurs.

Depending on the counterfactual scenario, the aggregate **long-run GDP gains range from €9.8 billion (0.07 %) to €74.0 billion (0.53 %) per year in the case of supply-side frictions and €2.78 billion (0.02 %) to €37.55 billion (0.27 %) per year in the case of demand-side barriers**, suggesting a large untapped growth potential in the EU from affirmative action policies in the area of legal migration. The **gains** are substantially **larger** when several barriers are addressed, i.e. several policy options are **jointly implemented**. The impact on **wages** of both migrant and native workers is also positive.

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This European added value assessment (EAVA) has been written with the aim of providing support to the ongoing work on a European Parliament legislative own-initiative report on legal migration policy and law 2020/2255(INL). The assessment reviews the key issues concerning legal migration in the status quo (with a focus on labour migration) and discusses the reasons why the EU should take action. It then explores a selection of possible EU actions that include recognising migrants' qualifications, facilitating access to employment of migrants already in the EU, developing new avenues for legal migration to the EU, tackling discrimination and promoting migrants' rights. The assessment finds that all policy options could generate substantial benefits for workers and spillover benefits for the EU economy. Moreover, as these policy options are complementary, they could be implemented together in order to enhance the added value of EU action.

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