Chapter 3. Capturing the ephemeral: How much labour do temporary migrants contribute in OECD countries?

This chapter addresses the impact of temporary migration on the host country labour market. It provides the first estimation of the additional labour contributed in full-year equivalent by temporary migrants to the employed population in 20 OECD countries. The chapter covers all forms of temporary migration, such as temporary labour migrants, international students, participants in cultural exchange programmes, service providers, accompanying families of temporary labour migrants, free-movement migrants and even cross-border workers.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Note by Turkey:
The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus issue”.

Note by all the European Union Member States of the OECD and the European Union:
The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.
Introduction

Over 4.9 million temporary labour migrants are estimated to have entered OECD countries in 2017 (see Chapter 1). This inflow includes only temporary migrants whose main purpose for migration was work. Many more temporary migrants with labour market access entered OECD countries, such as international students or accompanying family members of temporary labour migrants. Despite the large numbers in question, the impact of temporary migrants on the host country labour market is under-studied.

A rich economic literature studies the impact of immigration on the host country; however, it has largely focused on permanent migration due to a lack of data on temporary migrants. Not all temporary migrants are covered in the mainstream data sources used to study migration, such as census data or labour force surveys, and those who are, are often impossible to identify. Hence, most of the existing literature on temporary migration studies the impact of country-specific temporary migration programmes or groups.

This chapter contributes to the study of the impact of temporary migration by producing the first estimation of the contribution to the employed population of all temporary migrants in 20 OECD countries. The scope of the chapter is as wide as possible. It includes different categories of temporary labour migrants – such as seasonal workers, intra-company transferees, participants in temporary foreign worker programmes, cross-border workers – but also temporary migrants whose main purpose of migration is not work – such as working holidaymakers, international students, and accompanying family of temporary migrants.

The estimations are based on a new dataset of the characteristics, issuances and stocks of permits collected for this specific purpose from OECD member countries. Alternative data sources were used to estimate the contribution of EU/EFTA free movement migrants who are not captured in permit data.

The rest of the chapter is organised as follows. The first section presents a discussion on the role of temporary migration in migration policy and the importance of quantifying the employed temporary migrant population. The second section provides a description of temporary migration across OECD countries and an estimation of their contribution to the employed population in the host country. The third section focuses on temporary migration within the EU/EFTA free movement area, including posted workers. A summary of results and some concluding remarks are presented at the end of the chapter.

Main findings

- The impact of immigration on employment and wages of natives remains a core concern in the public debate across OECD countries. Despite this broad interest, the impact of temporary migrants on the host country labour market is under-studied.

- Almost as many temporary labour migrants entered OECD countries in 2017 as permanent migrants in all categories combined. Many other temporary migrants not usually classified as labour migrants also participate in the host country labour market, such as international students, participants in cultural exchange programmes, service providers, accompanying families of temporary labour migrants or cross-border workers. All temporary migrants who participate in the labour market need to be accounted for when estimating the full impact of migration.
In 6 out of 20 OECD countries, temporary migrants add 2% or more to the total employed population in the host country in full-year equivalent terms. The top two receiving countries are Luxembourg and Switzerland, where cross-border EU/EFTA workers drive the large estimated contribution of temporary migrants. New Zealand, Korea and Israel complete the top five.

Temporary migrants account for over 40% of all employed migrants (temporary or permanent) in Korea and over 25% in Japan. In New Zealand, their share is 13%, and between 5% and 8% in Australia, Canada, and the United States. Within EU/EFTA countries, temporary migrants account for the largest shares of employed migrants in Luxembourg (53%) and Switzerland (22%). These large contributions are driven by free-movement cross-border workers who make up the bulk of temporary migrants in these countries.

Labour migrants account for three-quarters or more of the total contribution of temporary migrants in all countries, except Australia, Canada and New Zealand. Working holidaymakers and international students work for only part of their stay in the host country. Nevertheless, the number of working holidaymakers is large enough to imply a significant contribution to the resident employed population in full-year equivalent terms in Australia and New Zealand. Similarly, international students contribute significantly to employment in Australia and Canada. In contrast, the contribution of accompanying family members to the resident employed population is estimated to be less than 10% of the total contribution in all countries considered.

On average in EU/EFTA countries, free-movement labour migrants, including cross-border workers, add close to 1% to the total resident employed population. Fully accounting for posted workers could increase the contribution of free movement temporary migrants by one third. According to data collected by the European Commission, over 1.7 million postings to another EU/EFTA country were declared in 2017.

Free-movement temporary labour migrants contribute most to the construction and manufacturing sectors. In seven countries, temporary migrants add 4% or more to the employed population in the construction sector.

This chapter demonstrates the need to pursue enhanced data collection efforts on temporary migration in order to build a complete picture of the impact of migration on host country labour markets in OECD countries. While temporary migrants have not been the main focus of academic research on the labour market impact of migration, they tend to be at the centre of public debate.

Why study the impact of temporary migration on the host country labour market?

The role of temporary migration in migration policy

The main objective of labour migration policy, and one of the main objectives of migration management in general, is to ensure that migration contributes to growth while avoiding negative effects – especially negative labour market impact – on residents. Granting temporary stay is one of the main policy tools to achieve this objective.

For labour migrants, temporary stay is generally used in conjunction with other migration management tools, such as sector or numerical restrictions and labour market tests, to
safeguard the resident population. Temporary work may be used when jobs are in event-related, cyclical or seasonal industries; temporary stays ensure that the migrants do not end up unemployed. Workers in low-skill or low-wage jobs may be subject to limits on their stay to reduce the long-term risk of benefit dependence (OECD, 2019[1]). This is a particular concern when unlimited stays grant family reunification rights, since countries may wish to avoid fostering an increase in low-income households. Limited stays could also be imposed when structural changes in the economy or labour force are expected to eliminate demand for certain jobs, or to encourage firms using such workers to invest in alternatives such as automation or training local workers.

Whether to impose a limit on the stay of workers, which categories to restrict, and for how long, are key questions in design of programmes. Many OECD countries have adjusted their policies for different categories of temporary workers to extend or curtail the maximum stay in order to achieve a more positive impact of these programmes. Determining the duration of stay can be a difficult balancing act, weighing workers’ migration costs and employers’ recruitment costs against the earnings and employment period.

For other migrants – students and different forms of cultural exchange – limits on stay may also be inherent to the intention of the migration programme. International students are admitted for the duration of their studies, for example, and while international study is often one of the main routes for eventual permanent residence, admission policy for students is separate from that of labour migrants. Indeed, international study is also meant to increase cultural influence abroad, best achieved when students leave. The policy trend across OECD countries has been to expand labour market access rights to international students – not so much to supply labour to the host country, but to ensure that international students can cover living expenses and further experience the host country. This is particularly important in countries with high student fees who wish to remain attractive in a context in which competition for high potential students has increased between OECD countries. Nonetheless, the impact of student employment has become noticeable in some contexts, especially since students tend to concentrate in a few sectors (such as hospitality) and in local areas around universities (OECD, 2014[2]).

Similarly, youth mobility and related programmes, such as au pair programmes, are designed to give foreign visitors a chance to learn the language and culture before returning home. For these channels, employment is essential not because these visitors fit a labour market need but because the possibility of employment allows them to cover the costs of their stay. Yet a number of OECD countries have seen these programmes grow to proportions where their labour market impact has become significant. Further, employers have grown to rely on these channels to find workers. As such programmes begin to play a major role in the labour force, countries must consider whether to regulate them as they would temporary labour migration programmes.

In other cases, workers arrive without necessarily passing through a managed migration channel. Within free-movement areas, a large number of temporary movements for labour purposes are registered. These include posted workers, cross-border workers, commuters, as well as more traditional forms of temporary foreign labour. In the European Union, the scope of these movements and the special conditions under which they take place have raised some concerns. That being said, many of these workers are employed only part of the time or for short periods. Hence, their full-time full-year equivalent contribution remains unclear.
Among OECD countries, a traditional distinction in terms of migration policy is made between “settlement” countries and “non-settlement” countries. The former are those where the population largely comprises descendants of immigrants and where migration policy continues to admit relatively substantial numbers of new migrants on a permanent basis to contribute to growth of the workforce, economy and population. Australia, Canada, New Zealand and the United States are “settlement” countries. Other OECD countries manage migration through specific channels and migration is not an explicit pillar in the long-term policy for sustaining growth in the workforce and population. The distinction between “settlement” and “non-settlement” countries has become less clear in recent years, as many of the latter admit larger numbers of immigrants and grant a temporary renewable stay which in practice amounts to a permanent track. This recent development makes the analysis of temporary migration even more important and therefore relevant for all OECD countries.

**The impact of temporary migration on the host country labour market is an understudied topic**

Despite its policy relevance and prominence in the public debate, the impact of temporary migration on the host country labour market has received surprisingly little attention in the academic and policy literature. While there is a rich economic literature on the impact of immigration, most studies focus on permanent migrants or do not distinguish between temporary and permanent migrants. See Annex 3.A for a brief review of the economic literature on the impact of immigration and a discussion on why the impact of temporary migration may differ from that of permanent migration.

The first challenge in addressing this research gap is measuring the total size of the employed temporary migrant population. While data on yearly inflows of temporary migrants are available for most OECD countries, translating these inflows into employment has remained unexplored. Similar inflows of temporary migrants may lead to significantly different contributions in terms of employed population depending on the duration of stay and the migration categories.

For example, some temporary migration spells are shorter than one year, which limits the contribution of these migrants to the host country labour market in full-year equivalent terms. This is typically the case of seasonal migrants or service providers, who only work in the host country for some months, or even only a few days, per year. In this case, a large inflow of temporary migrants may translate into a relatively modest contribution in terms of full-year equivalent employment.

Furthermore, temporary migrants are a heterogeneous group that vary in their participation in the labour market. Temporary labour migrants are generally in employment for all their duration of stay in the host country. This is the case of migrants hired by host country employers for a limited duration and return to their country of origin at the end of their employment spell in the host country.

Other temporary migrants, whose main purpose of migration is not work, may be employed only for part of their stay, or not work at all. While in some cases, whether to work and how much to work in the host country is the migrants’ choice, in other cases, it is a constraint imposed by the rules of the temporary migration programme of the host country. For example, international students are often limited in the hours they can legally work alongside their studies, and accompanying family members of temporary migrants are in some cases not allowed to work at all in the host country.
This chapter aims at closing this research gap by providing the first estimates of the total employed temporary migrant population in full-year equivalent for 20 OECD countries. The approach in the chapter sets out to be as comprehensive as possible and accounts for all categories of temporary migrants who may participate in the host country labour market. In particular, the chapter includes international students, cultural exchange programme participants, service providers such as EU/EFTA posted workers, as well as cross-border workers. The latter are not being strictly speaking migrants but are included in the analysis given that they contribute significantly to the labour market of some OECD countries.

Employed temporary migrant populations of similar sizes may nonetheless lead to a different impact on the labour market outcomes of natives, depending on the composition of the temporary migrant population as well as the labour market context. The mechanisms through which migrants affect the demand for, and supply of, native labour have been shown to differ markedly depending on the specific migration programme. For example, participants in cultural exchange programmes are allowed to work to finance their stay in the host country but their main reason for migration is travelling. Hence, they are likely to have a more positive impact on host-country demand for labour through their consumption than other categories of temporary migrants. Cross-border workers, on the other hand, compete for jobs with natives but consume less in the host country than temporary migrants who both work and live in the host country. Therefore, they may have a weaker positive effect on labour demand in the host country.

Studying the mechanisms through which temporary migrants affect the labour market outcomes of natives is beyond the scope of this chapter. While this chapter has a cross-country approach that is as comprehensive as possible, studying the mechanisms requires focusing on specific categories of temporary migrants or even country-specific temporary migration programmes. Annex 3.A also reviews the available programme-specific evidence on the impact of temporary migration in OECD countries.

Temporary migration across OECD countries

The rest of the chapter provides a comprehensive description of temporary migration across OECD countries and estimates their contribution to the employed population in the host country. For this exercise, one would ideally need yearly data on the inflows of temporary migrants, their duration of stay and the duration of their employment spells. Unfortunately, no cross-country data with this level of detail exists.

Instead, this chapter uses two main data sources. The first section explores a novel data set on permits and visas collected for this specific purpose from OECD countries. Box 3.1 presents the data set. The second section uses alternative datasets in order to document temporary migration within the EU/EFTA for which no permit or visa is issued.

This section presents an overview of temporary migration based on the permit data collected for 20 OECD countries – Australia, Belgium, Canada, Chile, Czech Republic, Estonia, France, Germany, Greece, Ireland, Israel, Japan, Korea, Luxembourg, Mexico, New Zealand, Spain, Sweden, Switzerland, and the United States – and then provides an estimation of its contribution to the resident employed population in the host countries.
Most temporary migrants need to obtain a permit or a visa to work temporarily in another country. The OECD permit data contains information on all residence and/or work permits and visas issued to temporary migrants. For simplicity, these are referred to as permits in the rest of the chapter.

For each permit, the dataset contains the number of permits issued annually – first issuance of the permit as well as renewals – and the end-of-the-year stock of valid permits for 2013-17. Furthermore, it contains information on the permit characteristics, such as the permit holder’s access to the labour market, the maximal duration of the initial permit and its renewability, and the right of accompanying family to reside and work in the host country.

A main limitation of permit data is that it does not provide information on how many temporary migrants are actually present in the host country in a given day of the year. A valid permit does not mean that the migrant is physically present. Despite obtaining a permit, the migrant may have ended up not travelling to the destination country or may have left the country before the end of validity of the permit.

A portrait of temporary migration across OECD countries

The different categories of temporary migrants

Figure 3.1 presents the total number of permits issued to all temporary migrants in 2017 by country. Box 3.2 presents the definition of temporary migrant and specifies the categories included in the analysis.

The United States is by far the country that issued the largest number of permits, followed by Australia, Japan and Canada. In per capita terms, New Zealand issued the most permits, followed by Australia, Israel and Canada. In EU/EFTA countries, the total number of permits issued is relatively modest given that many temporary migrants come from within the free-movement area and do not need to apply for a permit. Free-movement temporary migrants in the EU/EFTA are covered in the next section.

The number of permits issued is not equivalent to the number of temporary migrants arriving in the host country in a given year. First, an individual may have been issued a permit but decided not to migrate. Second, only three quarters of permits issued were first permits and one quarter were renewals, meaning the migrant already held the same type of permit and extended his/her stay in the host country.\(^1\)

How the number of permits issued translates into participation in the host country labour market depends on the share of permits issued to each category of temporary migrant. While temporary labour migrants work for virtually the whole duration of their stay in the host country, other categories of temporary migrants may work in a more limited way or, in some cases, may not even have access to the host country labour market.
Box 3.2. Who is a temporary migrant?

The definition of a temporary migrant used throughout the chapter is based on the OECD definition of temporary versus permanent migration. A permanent migrant is someone whose status enables him or her to stay in the host country indefinitely under the circumstances that prevailed at the time they arrived (Lemaître et al., 2007[3]). In contrast, a temporary migrant is someone whose status at entry does not enable him or her to remain in the host country without a status change subject to additional conditions.

Migrants within free-movement areas may freely choose their duration of stay in the host country. Some individuals choose to settle indefinitely whereas others migrate only temporarily to study, provide a service or work on a temporary basis. In the latter case, they contribute to the host country labour market in a similar way as other temporary migrants covered in the chapter. Free-movement temporary migration is addressed in the section entitled Temporary migrants within the EU/EFTA.

This chapter covers temporary migrants who have access to the host country labour market. The purpose of migration need not be labour related; it may be family (for example spouses of temporary migrants with work rights), study (for example international students) or cultural exchange (for example working holidaymakers). Hence, the chapter covers a wide variety of forms of temporary migration.

The focus of the chapter is on typical forms of employment. Hence, some categories of temporary migrants are excluded. This is the case of individuals who are self-employed; professional sportsmen; volunteers; religious workers; and performers. The analysis also
excludes business visitors given that in most cases they do not participate in the host country labour market.

Figure 3.2 presents the share of permits issued to temporary labour migrants, as well as to the other three main categories of migrants considered throughout the analysis: accompanying family, international students, and working holidaymakers. The share of temporary permits issued to labour migrants is over 80% in Korea, whereas it is 20% or less in Canada, Germany and France. International students account for a large share of permits issued in Spain, Canada and France. Most permits are issued to tertiary students but permits issued to language school students (for example in Japan) and religion students (for example in Israel) are also included. International students from within free-movement areas, such as the EU/EFTA, are not included in the Figure, given they do not need a permit.

Working holidaymakers are participants in cultural exchange programmes under bilateral agreements. These agreements exist in most OECD countries but exact duration and rules of the programmes vary across countries. In all cases, participants benefit from some access to the host country labour market but the aim of the programme is cultural exchange. The “working holiday visa” and the “work and holiday visa” in Australia, the “summer work travel visa” (a subcategory of the J1-visa) in the United States, and the International Experience Canada work permit are some examples of the permits included in the data set. Working holidaymakers are mainly relevant in Australia and New Zealand, where they account for approximately 30% of permits issued, and to a lesser extent also in Canada and the United States.

Accompanying family of temporary labour migrants and international students account for 25% of permits in Sweden and Mexico but only 2% in Korea. In Canada and New Zealand, accompanying family account for a relatively small proportion of total temporary permits. However, this is driven by the fact that only permits for partners/spouses with work rights are included in the data for these two countries. In the other countries, the data also includes dependents.

In most European countries, a small share of the permits are issued to accompanying family. In many countries, family members of most temporary labour migrants need to apply for family reunification and the process can only be started after the principal applicant has lived for a certain amount of time (usually 12 or 18 months) in the host country and is expected to stay longer. Family members who migrate following such family reunification procedures are not included in the analysis.
### Figure 3.2. Share of permits issued to the different categories of temporary migrants, 2017

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| Note: Permits issued to dependents in Australia and Chile are reported together with permits issued to principal applicants. No permit data for international students is available for Ireland. Data for Ireland and Belgium is employment permit data instead of residence permit data. Data for Germany for labour migrants refers to authorisations to work and not to permit data. Permit data for accompanying family is not available for Belgium, Germany and Ireland. Only data on permits for spouses/partners with labour market access is available for Canada and New Zealand under the category Accompanying family. Source: Calculations by the Secretariat based on OECD permit data.  

StatLink: [http://dx.doi.org/10.1787/888933989950](http://dx.doi.org/10.1787/888933989950)

Figure 3.3 presents a decomposition of the temporary permits issued to labour migrants into four main categories. Almost two-thirds of all the permits issued to labour migrants belong to a category “other labour migrants”. This category is composed mainly of permits issued to workers who have a job offer from a host country employer. It includes large temporary migration programmes in the OECD such as the Temporary Foreign Worker Programme in Canada (excluding seasonal workers), the H1-B visa in the United States or the E-9 visa in Korea. Some countries do not have specific permits for intra-company transferees, seasonal workers and trainees. Hence, these workers cannot be identified in the data and are classified in the category “other labour migrants”.

Trainees account for a small share of permits issued to temporary labour migrants in all countries, except in Japan – where they represent the vast majority of temporary labour migration – and in Korea. In countries in which intra-company transferees may be identified, they tend to represent a small fraction of total temporary labour migration permits, except in France, Germany, Luxembourg and Ireland. Similarly, seasonal workers represent 28% of temporary labour migration permits issued in Canada, 24% in France, 20% in the United States and 17% in New Zealand.
Figure 3.3. Breakdown of the different permits issued to temporary labour migrants, 2017

Note: Some countries do not have specific permits for intra-company transferees or trainees. Migrants are therefore issued a more generic permit and classified under “other temporary labour migrants” in the analysis. For example, Switzerland does not issue a specific permit for intra-company transferees. In other cases, the number of permits issued is too small to be visible in the Figure.
Source: Calculations by the Secretariat based on OECD permit data.

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The duration of stay varies across countries and types of permits issued

How much temporary migrants contribute to the host country labour market depends on how long they stay in the host country. The maximal duration of stay in the host country is specific to each permit and varies across countries. Figure 3.4 presents the distribution of permits issued to principal permit holders, excluding international students, in 2017, by the maximal duration of stay, including all possible permit renewals.

Figure 3.4. Distribution of the temporary permits issued in OECD countries by the maximal allowed duration of stay according to the permit rules, in months, 2017

Note: The distribution is calculated using all permits for the 20 OECD countries in the OECD permit data.
Source: Calculations by the Secretariat based on OECD permit data.

StatLink 2 http://dx.doi.org/10.1787/888933989988
Most permits issued can be renewed for a relatively long period of time. One-third of permits issued have a maximal duration of between two and four years, 15% over four years, and only 12% under one year. Moreover, 19% of permits issued have no fixed maximal duration of stay: 14% are renewable, at least in theory, for an indeterminate number of times, whereas 5% have the duration of the activity underlying the granting of the permit. This is the case for many permits for researchers and scholars, some permits for service providers, and for most subcategories of the International Mobility Programme in Canada.\(^4\)

It is important to keep in mind that temporary migrants may stay in the host country a shorter amount of time than allowed by the permit rules. In order to gauge how much of the allowed time they actually stay in the country, an estimation of the average duration of stay is done by dividing the end-of-year stock by the number of first issuances for each permit.\(^5\)

**Figure 3.5. Allowed duration of stay by the permit rule and estimated average duration of stay, 2017**

![Graph](http://dx.doi.org/10.1787/888933989931h)

*Note:* Each diamond represents one type of permit. The distance between the diamond and the 45° line indicates the gap between the estimated duration of stay in the host country for holders of that permit and the maximal duration usually allowed by the permit rules. In order to estimate the duration of stay, one needs data on stocks and first issuances of permits. Hence, due to missing data, permits issued in Australia, Belgium, Germany, Ireland, Mexico, Switzerland and the United States are not included in this estimation. *Source:* Calculations by the Secretariat based on OECD permit data.

Figure 3.5 plots the estimated average duration of stay against the maximal duration of stay as determined by the permit rules. Each point in the Figure represents one type of permit. The distance to the 45-degree line indicates the gap between the estimated average duration of stay and that allowed by the permit. If the point is above the 45-degree line, the average duration of stay is estimated to be longer than usually allowed by the rules. This is the case for permits that allow exceptional renewals when certain conditions are met. For example, the usual maximal duration of the E-9 visa in Korea is 58 months. However, temporary migrants may be granted an additional 58 months under certain conditions and end up working in Korea for up to 116 months.\(^6\) The estimated average duration of stay for the E-9 visa is 65 months.
For most permits, temporary migrants do not use their permit to its full-allowed duration. Although many permits are issued with an indeterminate duration of stay, the estimated average duration of stay for such permits is, with one exception, under two years. The wide range of estimated durations for such permits is linked to the heterogeneity in forms of migration covered. This includes permits for service providers (such as repairs and maintenance) with short estimated durations of stay, and permits for professionals or scholars with longer estimated durations of stay.

**Accompanying family and their access to the host country labour market**

The cross-country differences in the shares of permits issued to accompanying family documented in Figure 3.2 are driven by several factors. First, permits for some categories of migrants, such as seasonal workers or working holidaymakers, do not allow for sponsoring family in most countries and represent varying shares of permits issued across countries. Second, some countries are more likely to allow principal permit holders to sponsor accompanying family members, irrespective of the specific permit or type of migration considered. Third, even in the cases in which principal permit holders may sponsor family members, they may be more or less likely to do so. Their choice may depend on their intended duration of stay in the host country or the family members’ right to access the host country labour market.

Figure 3.6 shows the share of total permits issued in 2017 to temporary labour migrants that allow sponsoring of family members. There are large differences across countries. While the vast majority of permits issued in Sweden or Mexico allow the principal permit holder to sponsor accompanying family, less than 30% of permits issued in Korea and Japan allow doing so.

In most European countries considered – such as France, Greece, Luxembourg and Spain – only a small fraction of permits issued to temporary labour migrants allow family members to migrate at the same time as the principal applicant. This is only the case for some permits issued to highly skilled internationally mobile individuals such as researchers and intra-company transferees. However, in Sweden, most temporary migrants may sponsor accompanying family as long as their permit is valid for six months or more.

Not all accompanying family members may access the host country labour market. In New Zealand and Sweden, all accompanying family of principal permit holders can freely access the host country labour market. In contrast, in Korea, no accompanying family members can participate in the labour market without applying for their own visa. In the United States, family members of labour migrants need in most cases to apply for an employment authorisation to be able to work. Similarly, in Switzerland, accompanying family may need to apply for a work authorisation depending on the permit type of the principal permit holder.
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Figure 3.6. Share of permits issued to temporary labour migrants that allow sponsoring accompanying family and their access to the labour market, 2017

Note: Permits issued to temporary labour migrants only. In Switzerland, temporary labour migrants may apply for family reunification, although there is no established right. Six countries are not represented in this Figure. Permits issued to dependents in Australia and Chile are reported together with permits issued to principal applicants. Data for Belgium, Germany and Ireland does not cover the rights of the family of temporary migrants. Permit data for Estonia is too aggregate to distinguish between permits that allow for accompanying family and those that require family members to apply for family reunification.

Source: Calculations by the Secretariat based on OECD permit data.

StatLink: http://dx.doi.org/10.1787/888933990007

Permits for international students and working holidaymakers are excluded from Figure 3.6. Working holidaymakers are not allowed to sponsor dependents in any country. All permits issued to students in the non-European countries in the analysis allow sponsoring accompanying family. Whether accompanying family members of international students are allowed to work depends on the country considered and on the rules of specific permit issued. For example, accompanying family of students are not allowed to work in Chile. In the United States, family members of students are not allowed to work, except if the student holds a J-1 visa. In many European countries, spouses and dependents of students need to apply for the usual family reunification procedure.

Not all principal applicants who may sponsor family do so. In fact, the number of dependents relative to principal permit holders is rather small (Figure 3.7). In Sweden, temporary labour migrants sponsor one dependent each on average. In France, Spain and Switzerland, the ratio of dependents to principal permit holders is under 40%. The permits issued to dependents include permits issued to children of principal permit holders in these countries. The ratios of working age dependents to principal permit holders are likely to be significantly smaller than the ones in Figure 3.7.
The share of principal permit holders that sponsor accompanying family varies across permits. It is likely that principal permit holders who stay longer in the host country are more likely to sponsor family, whereas younger temporary migrants are less likely to have a spouse and children to sponsor. Unfortunately, in most countries a single permit is issued to dependents irrespective of the permit issued to the principal permit holder, which does not allow for a more detailed analysis.

While the ratios presented in Figure 3.7 concern only labour migrants, international students may also sponsor dependents in some countries. Furthermore, Canada, New Zealand, Sweden and the United States issue specific permits to accompanying family members of international students. Unsurprisingly, few international students actually sponsor family. The ratios of permits issued to dependents compared to permits issued to principal permit holders is much lower than for temporary labour migrants. It is 3% in Canada, 4% in New Zealand, 6% in the United States and 16% in Sweden.

**An estimation of the contribution of temporary migrants to the employed population in OECD countries**

The chapter uses the OECD permit data to provide an estimation of the contribution of temporary migrants to the employed population in the 20 OECD countries considered in the analysis. The estimation is done separately for temporary labour migrants – who work...
for virtually the whole duration of their stay in the host country – and other temporary migrants – who choose whether to work, and if so, for how long.

**Box 3.3. A permit-by-permit estimation: some examples**

Table 3.1 presents two examples to illustrate how the estimation transforms the data on issuances and stocks of permits into a full-year equivalent contribution of temporary labour migrants.

<table>
<thead>
<tr>
<th>Permit</th>
<th>Permits issued in 2017</th>
<th>Stock of valid permits on 31 Dec. 2017</th>
<th>Estimated duration of stay (months)</th>
<th>Estimated full-year equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan Researcher</td>
<td>604 First permits, 313 Renewals, 917 Total permits</td>
<td>1 598</td>
<td>32</td>
<td>1 598</td>
</tr>
<tr>
<td>Sweden Berry pickers</td>
<td>3 081</td>
<td></td>
<td>4</td>
<td>1 027</td>
</tr>
</tbody>
</table>

*Note: The estimated duration of stay is imputed for the work permits delivered to berry pickers. It is calculated by dividing the stock by the first issuances for researchers. The estimated full-year equivalent is calculated as the number of first permits times the estimated duration of stay in months divided by 12.

*Source: Calculations by the Secretariat based on OECD permit data.*

For permits that are valid for over one year, the stock is taken as the full-year equivalent estimation. The underlying assumption is that the number of valid permits is approximately constant throughout the calendar year. An example of this type of permit is one that is issued in Japan to researchers. There were 604 first permits issued in 2017, and 313 permit renewals. The estimated duration of stay is 2.7 years or 32 months. The contribution in 2017 of holders of the researcher permit is that of individuals who first received a permit in 2017, but also that of researchers who were granted a permit in 2016 or earlier and remained in the country up to 2017. The estimated full-year equivalent contribution of holders of this permit is then larger than the number of permits issued. It amounts to 1 598 full-year equivalent workers.

For permits under one year, the stock was also taken as the full-year equivalent estimation, except for permits for which the assumption that the number of temporary migrants is constant throughout the calendar year does not hold, such as for seasonal workers. In that case, the estimated full-year equivalent is the number of first permits issued times the fraction of the year that the permit is valid for or the duration the activity is expected to last. An example is the permit issued to berry pickers in Sweden. There were 3 081 permits issued for berry picking in 2017. Berry pickers are issued the general work permit in Sweden. There is no data on stocks of valid permits on December 31st for this subcategory of the work permit. In any case, stock data would not be a good estimation of the full-year equivalent contribution of berry pickers in 2017. Work permits in Sweden are usually issued for the duration of the employment contract up to a maximum of 24 months. The contract for berry pickers has the duration of the season, which lasts for four months approximately. Hence, their estimated full-year equivalent contribution is 1027 (3081 times 4 divided by 12).

The estimation done is a permit-by-permit estimation of the number of temporary migrants in the host country in a given year multiplied by their employment spell. Box 3.3 presents the estimation for two permits issued to temporary labour migrants as an example. Annex
3.B presents the estimation strategy of the contribution of temporary labour migrants and other temporary migrants.

*Temporary labour migrants add up to 2% to the host country’s employed population*

The United States issued the largest number of temporary labour permits in 2017: over 800,000 permits, which translate into 1.6 million full-year equivalent workers (Table 3.2). In relative terms, however, Korea, Israel and New Zealand are the top three countries in terms of magnitude of the employed population of temporary labour migrants. In these countries, temporary labour migrants add 2% or more to the employed population.

Large temporary migration programmes drive the larger contribution of temporary labour migrants in Korea and New Zealand. The E-9 and H-2 visas in Korea add 1.0% and 0.9% to the employed population and the Essential Skills programme in New Zealand by itself adds 1.4%.

Chile is the fourth country with the highest full-year equivalent contribution of temporary migrants as a share of the employed population. While Korea, Israel and New Zealand have separate temporary and permanent-migration tracks, in Chile, all migrants first receive a temporary permit, in many cases with the possibility to obtain a permanent permit after two years, or even one year, of residence.

In Australia, Canada and the United States, temporary labour migrants add 0.5% to 1% to the employed population. In the vast majority of European countries, the contribution is under a third of a percentage point. In these countries, many temporary labour migrants come from within the EU/EFTA free movement area and, given that they do not need a permit, they are not included in this dataset. One exception is Estonia, where the number of permits issued to temporary labour migrants has increased significantly since 2017. Over half of these permits are issued to citizens of Ukraine.

Comparing the number of permits issued to the estimated full-year equivalent number of workers highlights the value of the estimation exercise. In Korea, the estimated number of full-year equivalent workers is fourfold the number of permits issued – twofold in the United States – whereas in Australia it is half the number of permits. The much longer average duration of stay of temporary labour migrants in Korea than in Australia drives the differences observed.

Table 3.2 presents the contribution of different subcategories of temporary labour migrants for which data is available. The largest contribution of seasonal workers is in New Zealand, where they add a third of a percentage point to the employed population. In the United States and Canada, their contribution is more modest at 0.1%. In European countries, free-mobility migrants take up most seasonal work, which explains the low contribution of seasonal workers documented.

Intra-company transferees are mainly relevant in the United States, Luxembourg and Canada, adding over 0.1% to the employed population. Trainees represent a sizeable contribution only in Korea and Japan where they add 0.2% and 0.4% to the employed population respectively.
The contribution of other temporary migrants is limited by the permit rules and migrant choices in terms of labour market participation

For other temporary migrants (accompanying family, working holidaymakers, international students), the estimation is done by first incorporating the fact that different categories of migrants face different restrictions in accessing the labour market, and that these vary across countries. For example, most countries have rules on the maximal number of hours per week international students are allowed to work, or on the extent to which spouses and dependents have access to the host country labour market. Second, the estimation takes into account the fact that temporary migrants are generally not employed for as long as they could be, given the rules of the permits they hold. Annex 3.B presents the details of the estimation for the different groups of non-labour temporary migrants.

Accompanying family

Some permits issued to temporary labour migrants do not allow for sponsoring family and among those that do, the family members generally do not get access to the labour market in the host country. A way to assess the stringency of these rules is the following. One can compare the potential contribution of accompanying family under the assumption that all

### Table 3.2. Estimated full-year equivalent contribution of temporary labour migrants, 2017

<table>
<thead>
<tr>
<th>Temporary labour migrants (total)</th>
<th>Intra-company transferees</th>
<th>Seasonal workers</th>
<th>Trainees</th>
<th>Other labour migrants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Addition to the resident employed population (%)</td>
<td>Addition to the resident employed population (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permits issued</td>
<td>Full-year equivalent workers</td>
<td>Of which:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------</td>
<td>-------------</td>
<td>---------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Korea</td>
<td>147 080</td>
<td>617 680</td>
<td>2.31</td>
<td>0.01</td>
</tr>
<tr>
<td>Israel</td>
<td>111 110</td>
<td>80 150</td>
<td>2.10</td>
<td>0.01</td>
</tr>
<tr>
<td>New Zealand</td>
<td>65 510</td>
<td>50 540</td>
<td>1.97</td>
<td>0.33</td>
</tr>
<tr>
<td>Chile</td>
<td>140 740</td>
<td>155 510</td>
<td>1.88</td>
<td>0.15</td>
</tr>
<tr>
<td>United States</td>
<td>814 740</td>
<td>1 593 600</td>
<td>1.04</td>
<td>0.16</td>
</tr>
<tr>
<td>Estonia</td>
<td>9 880</td>
<td>6 260</td>
<td>0.95</td>
<td>0.11</td>
</tr>
<tr>
<td>Canada</td>
<td>122 140</td>
<td>133 940</td>
<td>0.73</td>
<td>0.05</td>
</tr>
<tr>
<td>Japan</td>
<td>405 720</td>
<td>366 990</td>
<td>0.56</td>
<td>0.03</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1 590</td>
<td>1 490</td>
<td>0.55</td>
<td>0.11</td>
</tr>
<tr>
<td>Australia</td>
<td>127 270</td>
<td>67 070</td>
<td>0.55</td>
<td>0.05</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>17 650</td>
<td>17 890</td>
<td>0.34</td>
<td>0.13</td>
</tr>
<tr>
<td>Sweden</td>
<td>15 950</td>
<td>13 690</td>
<td>0.27</td>
<td>0.02</td>
</tr>
<tr>
<td>Ireland</td>
<td>4 010</td>
<td>5 140</td>
<td>0.23</td>
<td>0.09</td>
</tr>
<tr>
<td>Belgium</td>
<td>11 250</td>
<td>10 650</td>
<td>0.23</td>
<td>0.00</td>
</tr>
<tr>
<td>Switzerland</td>
<td>13 650</td>
<td>9 640</td>
<td>0.21</td>
<td>0.00</td>
</tr>
<tr>
<td>Spain</td>
<td>21 090</td>
<td>23 840</td>
<td>0.13</td>
<td>0.01</td>
</tr>
<tr>
<td>Mexico</td>
<td>66 480</td>
<td>66 100</td>
<td>0.13</td>
<td>0.13</td>
</tr>
<tr>
<td>Greece</td>
<td>4 770</td>
<td>4 470</td>
<td>0.12</td>
<td>0.00</td>
</tr>
<tr>
<td>France</td>
<td>20 400</td>
<td>23 850</td>
<td>0.09</td>
<td>0.04</td>
</tr>
<tr>
<td>Germany</td>
<td>21 330</td>
<td>21 330</td>
<td>0.05</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Note: Blank cells indicate that there is no specific permit in the data for the category of temporary migration and country in question.

Source: Calculations by the Secretariat based on OECD permit data.

StatLink: [http://dx.doi.org/10.1787/888933990083](http://dx.doi.org/10.1787/888933990083)
temporary labour migrants whose dependents have access to the host country labour market were accompanied by one person (column B of Table 3.3) with that of all temporary labour migrants (column C of Table 3.3, reproduced from Table 3.2).

This estimated potential contribution of family members represents over 80% the contribution of temporary labour migrants in Japan, Mexico, New Zealand and Sweden, indicating a low stringency of the permit rules. However, there is a difference between these countries: while in Japan and Mexico family members may access the labour market but need to apply for a work permit, in New Zealand and Sweden they do not need to do so. In France, on the other hand, the estimated contribution is only 20% that of temporary labour migrants, because only a few permits allow for accompanying family, however, all accompanying family are allowed to work. In Korea, the stringency of the rules is extreme given that no accompanying family members are allowed to work.

Not all principal applicants who may sponsor dependents do so. They may not have dependents to sponsor or may choose not to. The second estimation presented in column A incorporates the actual observed number of permits issued to dependents. Three-quarters of the potential accompanying family members do migrate to the host country in France, whereas only 50% do so in Australia, New Zealand and Sweden, and 25% or less in Mexico, Japan and Switzerland. If all dependents with work rights were employed, they would add 0.5% to the resident employed population in New Zealand and under 0.2% in the other countries. This estimation represents the upper bound of the contribution of accompanying family.

Not all dependents who have work rights choose to enter the labour force, and among those that do, some do not find employment. Given the lack of data on temporary migrants, there is no cross-country estimation of the participation rates of accompanying family of temporary migrants. Hence, the estimation of the contribution of dependents to the employed population assumes arbitrarily that 50% of dependents who have work rights are employed. This estimated full-year equivalent contribution of dependents to the employed population is under 0.1% of the employed population in all countries except in New Zealand, where it is 0.4%.

The estimations in Table 3.3 consider only dependents of labour migrants. International students may also sponsor dependents who, in some countries, have the right to access the labour market. A similar estimation is in columns 2 and 3 for dependents of students, for the countries that have specific permits for dependents of students, shows that their estimated contribution to the employed population is small: 0.05% in New Zealand, 0.04% in Canada and 0.01% in Sweden.
Table 3.3. Estimated and maximal potential contribution of accompanying family of temporary labour migrants, 2017

<table>
<thead>
<tr>
<th>Country</th>
<th>Permits issued</th>
<th>Full-year equivalent workers (FYE)</th>
<th>Addition to the resident employed population (%)</th>
<th>Estimated contribution</th>
<th>Maximal potential contribution: three scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand</td>
<td>20 300</td>
<td>9 590</td>
<td>0.37</td>
<td>19 190 (% 0.63)</td>
<td>41 330 (FYE 50 540)</td>
</tr>
<tr>
<td>United States</td>
<td>372 520</td>
<td>182 780</td>
<td>0.12</td>
<td>365 560 (% 0.17)</td>
<td>1 087 650 (FYE 1 583 600)</td>
</tr>
<tr>
<td>Canada</td>
<td>26 320</td>
<td>16 450</td>
<td>0.09</td>
<td>32 900 (% 0.13)</td>
<td>72 300 (FYE 133 940)</td>
</tr>
<tr>
<td>Australia</td>
<td>61 380</td>
<td>9 360</td>
<td>0.08</td>
<td>18 720 (% 0.12)</td>
<td>35 450 (FYE 67 070)</td>
</tr>
<tr>
<td>Sweden</td>
<td>11 370</td>
<td>2 850</td>
<td>0.06</td>
<td>5 700 (% 0.09)</td>
<td>12 270 (FYE 13 890)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>11 390</td>
<td>820</td>
<td>0.02</td>
<td>1 630 (% 0.03)</td>
<td>9 520 (FYE 9 640)</td>
</tr>
<tr>
<td>Mexico</td>
<td>26 890</td>
<td>6 720</td>
<td>0.01</td>
<td>13 440 (% 0.01)</td>
<td>53 320 (FYE 66 100)</td>
</tr>
<tr>
<td>Japan</td>
<td>35 010</td>
<td>7 820</td>
<td>0.01</td>
<td>15 650 (% 0.02)</td>
<td>321 510 (FYE 366 990)</td>
</tr>
<tr>
<td>Spain</td>
<td>5 780</td>
<td>2 130</td>
<td>0.01</td>
<td>4 260 (% 0.01)</td>
<td>9 540 (FYE 23 840)</td>
</tr>
<tr>
<td>France</td>
<td>1 600</td>
<td>1 790</td>
<td>0.01</td>
<td>3 580 (% 0.01)</td>
<td>4 810 (FYE 23 850)</td>
</tr>
<tr>
<td>Korea</td>
<td>4 030</td>
<td>0</td>
<td>0.00</td>
<td>0 (% 0.00)</td>
<td>0 (FYE 617 680)</td>
</tr>
<tr>
<td>Chile</td>
<td>172 740</td>
<td>0</td>
<td>0.00</td>
<td>0 (% 0.00)</td>
<td>0 (FYE 155 510)</td>
</tr>
</tbody>
</table>

Source: Calculations by the Secretariat based on OECD permit data.

StatLink: [http://dx.doi.org/10.1787/888933990102](http://dx.doi.org/10.1787/888933990102)

Working holidaymakers

Working holidaymakers are a significant potential source of labour in several of the countries studied. However, the large number of permits issued do not translate into full-year equivalent workers, given that not all working holidaymakers work and those who do, do not work for the whole duration of their stay.

Table 3.4 summarises the contribution of working holidaymakers in two different scenarios. First, the table presents the maximal potential contribution of working holidaymakers, that is under the assumption that all working holidaymakers work for the whole duration of their stay in the host country. Second, the table presents an estimated contribution of working holidaymakers under the assumption that the average working holidaymaker works full-time for four months, consistent with evidence for Australia and New Zealand (See Annex 3.B for the details of the estimation).

If working holidaymakers would work the whole duration of their stay in the host country, they could potentially add 2.8% to the employed population in New Zealand, 1.7% in Australia, and 0.4% in Canada. Despite relatively large number of permits issued in the United States to working holidaymakers, the maximal duration of the programme is four months, reducing the potential contribution of these temporary migrants (0.07% of the employed population) relative to the other countries considered.
Using an estimated work duration of four months, working holidaymakers add an estimated 0.9% to the employed population in New Zealand and 0.6% in Australia.\(^8\)

Table 3.4. Estimated and maximal potential contribution of working holidaymakers, 2017

<table>
<thead>
<tr>
<th>Country</th>
<th>Permits issued</th>
<th>Estimated contribution</th>
<th>Maximal potential contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Full-year equivalent workers</td>
<td>Addition to the resident employed population (%)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>73 120</td>
<td>24 370</td>
<td>0.95</td>
</tr>
<tr>
<td>Australia</td>
<td>211 010</td>
<td>70 340</td>
<td>0.57</td>
</tr>
<tr>
<td>Canada</td>
<td>62 640</td>
<td>27 120</td>
<td>0.15</td>
</tr>
<tr>
<td>Ireland</td>
<td>3 340</td>
<td>1 110</td>
<td>0.05</td>
</tr>
<tr>
<td>United States</td>
<td>104 920</td>
<td>34 970</td>
<td>0.02</td>
</tr>
<tr>
<td>Japan</td>
<td>13 770</td>
<td>4 590</td>
<td>0.01</td>
</tr>
<tr>
<td>France</td>
<td>4 270</td>
<td>1 420</td>
<td>0.01</td>
</tr>
<tr>
<td>Sweden</td>
<td>650</td>
<td>220</td>
<td>0.00</td>
</tr>
<tr>
<td>Korea</td>
<td>1 870</td>
<td>620</td>
<td>0.00</td>
</tr>
<tr>
<td>Spain</td>
<td>710</td>
<td>240</td>
<td>0.00</td>
</tr>
<tr>
<td>Belgium</td>
<td>150</td>
<td>50</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Note:* The maximal potential contribution assumes that all working holidaymakers work for the whole duration of their stay in the host country. The estimated contribution assumes that on average working holidaymakers work for four months in the host country. Only countries with working holidaymaker agreements and that issued 100 permits or more in 2017 are included in the table.

*Source:* Calculations by the Secretariat based on OECD permit data.

StatLink [http://dx.doi.org/10.1787/888933990121](http://dx.doi.org/10.1787/888933990121)

**International students**

International students have the right to work alongside their studies, at least part-time, in most OECD countries. In countries with a large international student population, the contribution of students to the host country’s labour supply may be significant.

The contribution of students to the host country’s employed population is bound by the country-specific rules on student work, but also depend on the students’ decision to take up employment. Most OECD countries restrict the number of hours per week international students are allowed to work during term-time, but allow students to work full-time during school breaks and holidays. See Annex 3.B for more details on the estimation.

The maximal potential contribution of international students is estimated in full-year and full-time equivalent (FY/FTE) terms by assuming that all international students work the maximal hours allowed by the rules of their permit. In full-year full-time equivalent terms, international students add up to 1.3% to the working age population in Australia and New Zealand, and 1.1% in Canada. In the other countries, their maximal potential contribution is 0.4% or less. This estimation represents the upper bound of the contribution of international students to the employed population.

The choice of international students to take up employment alongside their studies varies across countries. Unfortunately, no comparable cross-country estimation of the propensity to work is available at this stage. The estimated contribution of international students to the employed population assumes that the average student works 25% of the maximal hours of work allowed per year by the permit rules. Under this scenario, in Australia, New Zealand...
and Canada, students add up to 0.4% of the employed population, and 0.1% or less in other countries.

This estimation is likely to underestimate the contribution of international students in several countries. For example, in Japan, international students need to apply for a work authorisation in order to take up employment. The data on work authorisations issued to international students in 2017 indicates that approximately 90% of students intended to work alongside their studies. In this case, the contribution of international students is closer to the estimated upper bound.

Table 3.5. Estimated and maximal potential contribution of international students, 2017

<table>
<thead>
<tr>
<th>Country</th>
<th>Stock of valid permits</th>
<th>Full-year equivalent workers</th>
<th>Addition to the resident employed population (%)</th>
<th>Maximal potential contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>219 680</td>
<td>53 590</td>
<td>0.44</td>
<td>214 350</td>
</tr>
<tr>
<td>New Zealand</td>
<td>59 740</td>
<td>9 910</td>
<td>0.39</td>
<td>39 640</td>
</tr>
<tr>
<td>Canada</td>
<td>492 970</td>
<td>69 500</td>
<td>0.38</td>
<td>278 010</td>
</tr>
<tr>
<td>United States</td>
<td>971 420</td>
<td>161 130</td>
<td>0.11</td>
<td>644 500</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>21 410</td>
<td>5 350</td>
<td>0.10</td>
<td>21 410</td>
</tr>
<tr>
<td>Ireland</td>
<td>13 100</td>
<td>2 170</td>
<td>0.10</td>
<td>6 690</td>
</tr>
<tr>
<td>Japan</td>
<td>311 520</td>
<td>62 150</td>
<td>0.10</td>
<td>248 610</td>
</tr>
<tr>
<td>Estonia</td>
<td>2 480</td>
<td>620</td>
<td>0.09</td>
<td>2 480</td>
</tr>
<tr>
<td>France</td>
<td>186 710</td>
<td>21 470</td>
<td>0.08</td>
<td>85 890</td>
</tr>
<tr>
<td>Sweden</td>
<td>12 360</td>
<td>3 090</td>
<td>0.06</td>
<td>12 360</td>
</tr>
<tr>
<td>Switzerland</td>
<td>17 430</td>
<td>2 520</td>
<td>0.05</td>
<td>10 100</td>
</tr>
<tr>
<td>Korea</td>
<td>86 880</td>
<td>14 410</td>
<td>0.05</td>
<td>57 640</td>
</tr>
<tr>
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<td>0</td>
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<td>Mexico</td>
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<td>0</td>
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</tbody>
</table>

Note: The maximal potential contribution assumes that all students work for the maximal duration allowed in the host country. The estimated contribution assumes that on average students work for 25% of the time allowed by their permit. Data for Ireland, Switzerland and the United States is 2016 enrolment data from the UOE (UNESCO-OECD-Eurostat) dataset, given that no data on stocks of valid permits exists for these countries. Source: Calculations by the Secretariat based on OECD permit data.

StatLink: http://dx.doi.org/10.1787/888933990140

Temporary migrants within the EU/EFTA

Migrants within free-movement areas may freely choose their duration of stay in the host country. Some individuals choose to settle indefinitely whereas others migrate only temporarily to study, provide a service, or work on a temporary basis. In the latter case, they contribute to the host country labour market in a similar way as temporary migrants covered in the previous section.

Within the EU/EFTA, the largest free-movement area in the OECD, individuals do not need a permit nor a visa to work and study in a country other than their country of residence,
and as such are not covered in the OECD permit data. This section provides an estimation of the contribution of free-movement temporary migrants to EU/EFTA countries based on alternative datasets. Box 3.4 and Box 3.5 address free-movement between Australia and New Zealand.

**Free-movement temporary labour migrants in the EU/EFTA add over 1% to the total employed population in a third of EU/EFTA countries**

The estimation in this section uses a novel methodology to identify free-movement temporary labour migrants based on data from the EU labour force survey (EU-LFS). Free movement temporary migrants are defined, for the purpose of this exercise, as individuals who declare working in a country other than their country of usual residence. As long as individuals work, or intend to work, abroad for less than one year, they are still considered residents of the country of origin. Annex 3.B provides a detailed description of the estimation.

Using this definition allows to capture not only individuals who migrate to another EU/EFTA country for less than one year, but also cross-border workers. While these are not traditionally considered migrants, it is important to include them in the analysis to capture all participants in the host country labour market.

Using this methodology, an estimated 1.6 million free-movement temporary labour migrants worked in EU/EFTA countries in 2017. This number increased by over 20% in the period 2013-17 relative to a 5.5% increase in total employment in the EU/EFTA.

Switzerland was the host country with the largest number of temporary migrants (410 000) in 2017, followed by Germany (398 000), and then Luxembourg, Austria, the Netherlands and the United Kingdom, each hosting between 100 000 and 200 000 temporary migrants (Figure 3.8).

Free movement temporary labour migrants add 0.9% to the total resident employed population in EU/EFTA countries, and over 1% to the employed population in ten countries. Luxembourg is by far the country with the highest contribution of free mobility temporary migrants to its employed population (67.2%). For every 100 resident workers in Luxembourg, there are 67 additional full-year full-time equivalent temporary migrants, most of which are likely to be cross-border workers. Temporary migrants are also a significant addition to the total resident employed population in Switzerland (8.9%), Austria (4.0%), Norway and Belgium (1.8% each).
### Box 3.4. Free movement between Australia and New Zealand

The Trans-Tasman Travel Arrangement regulates free movement between Australia and New Zealand. Upon arrival in Australia, New Zealand citizens are granted a Special Category visa (subclass 444). Although this visa is classified as a temporary visa, it allows New Zealanders to live, study and work in Australia as long as they hold the New Zealand citizenship. Australian citizens, and permanent residents, are granted a resident visa upon arrival in New Zealand.¹

Migration flows between the two countries have been shown to be driven by relative economic conditions, which speaks to the importance of temporary work migration within this free movement area. However, there is no available estimation of the contribution of free movement temporary migrants to the host country labour markets of these two economies.

Similar to the estimations done for the EU/EFTA, one could try to estimate the contribution of free-movement labour migrants who work in Australia and New Zealand for up to one year. Data collected from the passenger arrival cards (New Zealand) or incoming passenger cards (Australia) contain information on the country of resident of visitors, their reason of travel and their intended duration of stay. However, there is not enough detail in the information collected for an estimation of the number of individuals who migrate for work purposes, nor of their duration of stay.

¹ Family members of New Zealand citizens who are not New Zealanders may also live and work in Australia by applying for a New Zealand Citizen Family Relationships visa (461 visa). These visa holders were not included in the estimation. Approximately 2 000 such visas were issued in 2016/17 and about 1 500 visa holders were in Australia on June 30th 2017.
The contribution of free-movement temporary labour migrants is largest in the construction and manufacturing sectors

An advantage of using survey data for the estimation of the contribution of temporary migrants relative to permit data is that it contains information on the characteristics of the jobs held by temporary migrants, and in particular, the sector of activity they work in. Hence, it contributes to providing a more complete picture of temporary migration in the host country.

Free movement temporary labour migrants are over-represented in the manufacturing and construction sectors relative to resident workers. 40% of all free-movement temporary migrants across EU/EFTA countries work in one of these two sectors compared with 22% of resident workers (Annex 3.C, Annex Table 3.C.1). The uneven distribution of free movement temporary labour migrants across sectors is mirrored in their distribution across occupations. Free-movement temporary migrants are over-represented among blue-collar workers. Almost half of all temporary migrants are blue-collar workers compared with 31% of resident workers (Annex 3.C, Annex Table 3.C.2).

The contribution of free-movement temporary labour migrants to the manufacturing and construction sectors is much larger than their estimated contribution to the total resident employed population. Free-movement temporary labour migrants add 2.4% to the total EU/EFTA resident employed population in the construction sector and 1.2% to that in the manufacturing sector.

Figure 3.9. Free movement temporary labour migrants by sector and receiving country, 2017

Full-year equivalent addition to the resident employed population in the construction and manufacturing sectors

Note: Residents of Cyprus, Malta and Slovenia who work in another country are not included in the analysis because there is no information on the country of work.

Source: Labour Force Surveys (Eurostat).

StatLink  http://dx.doi.org/10.1787/888933989874

There are large differences across countries as presented in Figure 3.9. Luxembourg stands out again: free-movement temporary migrants add 356% to employment in manufacturing and 193% to employment in construction. There are over three times as many free-
movement temporary migrants working in manufacturing, and twice as many working in construction, in full-year equivalent, than Luxembourg residents. In Switzerland, free-movement temporary migrants add 23% to the employment in manufacturing and 18% to that in construction. Luxembourg and Switzerland represent exceptional cases; however, free-movement temporary labour migrants are also an important source of labour in manufacturing and construction in other countries. They add over 3% (4%) to the resident employed population in manufacturing (construction) in five other countries.

**The contribution of free-movement international students**

Similar to what happens with temporary labour migrants, a large share of international students in EU/EFTA countries come from another country within the free-movement area. Within the EU/EFTA, international students do not need a permit to study, and are hence not included in the OECD permit data. Furthermore, while international students from third countries can only work limited hours, free-movement international students do not face such restrictions.

In order to estimate the contribution of free-movement international students to the resident employed population in their country of study, one would ideally need to know the share of students who take up some form of employment and on average how many hours per year they work. Unfortunately, the samples of EU/EFTA international students in the EU-LFS by country of study are too small to produce reliable estimations of these statistics.

In this case, data on enrolment of international students at post-secondary institutions from a joint UNESCO/OECD/Eurostat dataset (UOE data) was used. The estimation of the contribution of free-movement international students to the employed population is based on the assumption that 25% of EU/EFTA international students work 20 hours per week during term time and full-time during school holidays. More details of the estimation are presented in Annex 3.B.

**Figure 3.10. EU/EFTA international students by country of study, 2016**

Full-year equivalent addition to the resident employed population

Source: UNESCO/OECD/Eurostat dataset (UOE data).

StatLink [http://dx.doi.org/10.1787/888933989893](http://dx.doi.org/10.1787/888933989893)
The estimated contribution of free movement international students to the resident employed population in full-year equivalent terms is modest. They add at most 0.2% to the employed population. For most countries, they add between 0.03% and 0.1% to the employed population.

Box 3.5. The contribution of free-movement students in New Zealand and Australia

International students within the Australia-New Zealand free-movement area do not need a permit to move within the two countries to study. Hence, Australian students in New Zealand and New Zealander students in Australia are not included in the estimations presented based on permit data.

According to the UOE enrolment data, there were approximately 2,400 tertiary students from New Zealand enrolled in Australian higher education institutions, and 2,600 tertiary students from Australia enrolled in New Zealand higher education institutions. Free-movement international students represent a small share of the total number of international students enrolled in both countries: 5% in New Zealand and under 1% in Australia.

Assuming that 25% of free-movement students work 20 hours per week during term-time and full-time during school breaks in both countries, they add 0.01% to the employed population in Australia and 0.07% in New Zealand.

Focus on posted workers

Service providers, or posted workers, in the EU/EFTA move across countries within the free-movement agreement and as such, they are included in the population of temporary migrants in the EU-LFS, but cannot be identified. Given the increasing number of posted workers in the EU, and their importance in the public debate, a short analysis on their specific contribution to the employed population in the EU/EFTA is presented in this section.

To do so, this section uses data on postings collected yearly by the European Commission from member countries, the PD A1 data (see Box 3.6 for details on the data set).

Box 3.6. The PD A1 Data

An employer posting employees to another EU/EFTA country requests a Portable Document A1 (PD A1) from the social security of the sending country which confirms that the workers are enrolled in the social security and need not pay social security contributions in another EU/EFTA country.

The European Commission publishes an annual report on postings in the EU/EFTA based on a questionnaire sent to member countries on their issuances of Portable Documents A1. The questionnaire contains information on the number of PDs A1 delivered; the number of individuals who received a PD A1 (an individual may be posted several times in one year and consequently receive several PDs A1); the breakdown by receiving country; the breakdown by sector of activity; and the average duration of the posting period. The data includes information on two groups of posted workers: workers posted according to Article 12 of the Basic Regulation (Regulation (EC) No 883/2004) – that is workers posted to another country for less than 24 months – and workers active in two or more member...
states according to Article 13 of the Basic Regulation. A small share of PDs A1 are issued
to other mobile workers, such as mariners and flight or cabin crew members.

The data on PD A1 is the only source of comparable data to estimate the number of
EU/EFTA service providers. Nevertheless, there are some limitations to using this data
source.

First, a PD A1 document may be issued to an employer for a given employee but there is
no way to know if any work was actually done or if any migration occurred. Second, the
employer may not request the PD A1 as it is not compulsory to do so. In theory, this would
mean that the social contributions should be paid in the country of destination, but for short-
term postings, there may not be enough controls in the country of destination to enforce
the rule. Finally, a main limitation of the data for the analysis undertaken in this chapter is
that many countries do not fully answer the European Commission questionnaire, which
leads to an incomplete picture of postings in the EU/EFTA. These limitations, due to
missing data, are described in detail in Annex 3.B.

   coordination of social security systems.

\[
A \text{ full-year equivalent estimated contribution of posted workers to the employed population}
\]

Based on the PD A1 data, De Wispelaere and Pacolet (2018[4]) report a total of 2.8 million
postings declared in 2017 in the EU/EFTA. Two main types of posted workers are captured
in the data: 1.7 million postings under Article 12 of the Basic Regulation (workers posted
to another country) and approximately 1 million postings under Article 13 (workers active
in two or more member states). Approximately half of the postings under Article 13 involve
workers in the road freight transport sector.

Figure 3.11 presents the number of postings per destination country as well as an estimation
of their contribution to the resident employed population in full-year equivalent terms. Only
the contribution of postings under Article 12 may be estimated by country of destination.
This is because data on postings is reported by sending countries, and these only report the
breakdown by country of destination for postings under Article 12.

The number of postings is not directly comparable to the number of free movement
temporary migrants estimated using the EU-LFS. First, the number of postings does not
correspond to the number of posted workers. A worker is posted on average twice in a year.
Second, posted workers are likely to be undercounted in the EU-LFS, especially in the case
of short postings. Assuming that these biases are comparable across countries, a
comparison between the number of free-movement temporary migrants and postings
(Figure 3.8 and Figure 3.11) indicates that postings are relatively more important in France,
Sweden and Belgium, and to a lesser extent in Germany and Austria. In Luxembourg and
Switzerland, other forms of free movement (such as cross-border workers) dominate free
movement temporary migration.
The estimation of the contribution of postings in full-year equivalent requires the duration of postings to be taken into account. In 2017, the average duration of a posting under Article 12 was 98 days. The estimation presented in Figure 3.11 assumes that the duration of postings was constant by receiving country at 98 days. Alternative estimations were made using the assumption that the duration of postings varies across sending country but is constant across receiving countries. The results are similar and hence are not reported here. See Annex 3.B for further details.

Luxembourg is again an outlier with an estimated contribution of postings of over 3.1% to the employed population. Full-year equalised postings add between 0.6% and 0.9% to employment in Belgium, Austria, and Switzerland. In all other countries, postings add less than a third of a percentage point to employment.

**Posted workers in the construction sector**

The public debate on posted workers focuses on their potential impact on the sectors in which they are over-represented and the construction sector in particular. The construction sector by itself accounts for 46.5% of postings under Article 12 (De Wispelaere and Pacolet, 2018[4]). Construction is relatively more important in postings than in free movement temporary migration as a whole. Construction represents between 44% and 52% of postings in the three countries with the largest number of postings: Germany, France and Belgium, and up to 64% in Austria. In contrast, construction accounts for one-third or less of postings in the Netherlands, Switzerland, Italy, Spain and the United Kingdom.

The estimation presented in Figure 3.12 is based on the information reported by 21 countries on the breakdown of the postings to other EU/EFTA countries by sector of activity of the posting firm and assumes again an average duration of postings of 98 days. In some countries, posted workers are estimated to add significantly to the resident...
employed population in the construction sector. They add 30.5% in full-year equivalent terms to the resident employed population in construction in Luxembourg, 9.5% in Belgium and 7.2% in Austria.

**Figure 3.12. Free movement postings (under Article 12) in the construction sector by receiving country, 2017**

Full-year equivalent addition to the employed resident population in construction

![Graph showing the contribution of free movement postings to the employed resident population in construction across countries.]

*Note:* The numbers do not include postings from Switzerland, Norway, and the United Kingdom, since these countries did not provide the breakdown of the number of postings by receiving country. The estimation uses an average duration of postings of 98 days. Only 21 countries provided the breakdown by sector of activity.

*Source:* Calculation by the Secretariat based on information in De Wispelaere and Pacolet (2018).

StatLink: [http://dx.doi.org/10.1787/888933989912](http://dx.doi.org/10.1787/888933989912)

**Box 3.7. Evidence on the impact of posting on the Belgian and French labour markets**

While the data on PDs A1 is collected from the sending countries, some European countries collect data on workers posted to their countries, which provides rich additional information on posting. This Box briefly reviews the evidence on the contribution of posting to the French and Belgian labour markets according to national data sources.

**France**

Foreign employers who post workers to France must declare this activity to the French Ministry of Labour (Direction Générale du Travail, DGT). Employers fill out a form that has information on the expected duration of the service, the number of workers posted, the country and sector of activity of the employer, among others. Until July 2016, regional offices collected these forms and then reported aggregate results to the central office of the DGT. Since then, the DGT has put in place a centralised online system (Téléservice SIPSI). Foreign employers simply fill out an online declaration.

The DGT publishes an annual report that summarises the information on posting declarations (Direction Générale du Travail, 2017[5]; Direction Générale du Travail, 2016[6]). The data covers both EU/EFTA and non-EU/EFTA posting declarations, however non-EU postings represent a very small share of the total number of declarations. Among
EU/EFTA countries, eight countries represent about 80% of the total number of declarations. These are Spain, Portugal, Germany, Poland, Belgium, Luxembourg, Italy, and Romania.

In 2016, foreign employers made approximately 128 000 declarations, corresponding to 354 000 individual postings. This represents an increase from the 2015 numbers of 81 000 declarations and 286 000 postings. The better coverage of the data in 2016 relative to 2015 partly explains the increase in the numbers (for more details, see Direction Générale du Travail (2017[5])). Using the information on the duration of postings, the DGT estimates that in 2015, postings contributed to 10.7 million days of work in France, which is 46 700 full-time full-year equivalent jobs. This estimation is of a similar magnitude to that found in the section above with the European data for 2017. No comparable estimation is available for 2016.

The contribution of posting varies across sectors. While the construction sector represented 27% of declarations in 2015, it accounted for 37% of working days. Similarly, temporary placement firms accounted for 15% of declarations and 25% of working days.

Belgium

Posting employers and self-employers must declare their postings to Belgium in the LIMOSA system. The data contains information on the employer posting, on the posted employees, as well as on the Belgian clients using posting.

De Wispelaere and Pacolet (2017[7]) use the LIMOSA data to study the impact of intra-EU postings on the construction sector. This is the sector with the largest number of postings in Belgium. In 2015, there were approximately 210 800 intra-EU/EFTA individual posted workers in Belgium, 62% of which were in the construction sector.

The paper shows that individual intra-EU/EFTA posted workers account for one third of individuals working in construction in Belgium in 2015. Moreover, the number of intra-EU/EFTA individual posted workers in the construction sector between 2011 and 2015 increased by 85 000, whereas the number of Belgian based construction workers decreased by 10 000.

Unfortunately, the estimations in the paper do not account for the posting period. While the average intra-EU posted worker is posted several times a year, the total number of posting days may still in many cases be less than the equivalent of one full working year. Hence, one posted worker is not equivalent to one domestic worker. Nevertheless, the authors provide a back-of-the-envelope calculation according to which postings account for one in four full-time equivalent jobs in the construction sector in Belgium in 2015.


Summary of results and concluding remarks

Summary of the estimation results

Table 3.6 presents the sum of the estimations done for all the subgroups of temporary migrants throughout the chapter. The contribution of temporary migrants in terms of full-year equivalent workers in 2017 varies from less than 10 000 workers in Estonia to close to 2 million in the United States. In 6 out of the 20 countries included in the analysis,
temporary migrants add 2% or more to the resident employed population in full-year equivalent terms, in 6 other they add less than 1%, and in the remaining 8, they add between 1 and 2%.

Table 3.6. Estimated full-year equivalent contribution of temporary migrants, 2017

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<th>Dependents</th>
<th>Working holidaymakers</th>
<th>International students</th>
<th>Labour migrants</th>
<th>International students</th>
<th>EU/EFTA Free movement</th>
<th>Total full-year equivalent workers</th>
<th>Total added to the resident employed population</th>
<th>Share of all employed migrants</th>
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</tbody>
</table>


StatLink 2 http://dx.doi.org/10.1787/888933990159

The contribution of temporary migrants to the resident employed population is the largest in Luxembourg. Temporary migrants add 65% to the resident employed population. Equivalently, there is 1.3 full-year equivalent employed temporary migrants for every two resident workers. Luxembourg is an outlier due to the large share of EU/EFTA cross-border workers in its workforce. Similarly, temporary migrants add 9.2% to the resident employed population in full-year equivalent terms in Switzerland.

In all EU/EFTA countries, free movement temporary migrants account for 50% or more of the total contribution. Apart from Luxembourg and Switzerland, free-movement accounts for 88% of the estimated contribution of temporary migrants in Belgium and 91% in Germany.

New Zealand, Korea and Israel are the three non-European countries with the largest contributions of temporary migrants to the employed population, with temporary migrants...
adding respectively 3.6%, 2.4% and 2.1% to the resident employed population in full-year equivalent terms.

Table 3.6 also illustrates the contribution of temporary migrants by category (working holidaymakers, international students, etc.). Labour migrants account for approximately three-quarters of the contribution of all temporary migrants in every country except Australia, Canada and New Zealand. The lower contribution of temporary labour migrants is due to the larger contribution of working holidaymakers in Australia and New Zealand and that of international students in Australia and Canada. The contribution of accompanying family is limited — they account for, at most, 10% of the total contribution.

As mentioned at the beginning of the chapter, the focus of the literature on the impact of immigration has predominantly been on permanent migrants. To give some perspective to the estimations presented in the chapter, the last column of Table 3.6 presents the share of full-year equivalent temporary migrants relative to all employed migrants (temporary and permanent). The approach taken here is to assume that no temporary migrant is included in the foreign-born resident population. Hence, the share presented is a lower bound of the contribution of temporary migrants.

Temporary migrants account for 46% of all employed migrants (temporary or permanent) in Korea and 24% in Japan. In Chile and Mexico, the shares are 35% and 24%. In New Zealand, their share is 13%, and 5 to 7% in Australia, Canada, and the United States. In Luxembourg and Switzerland, temporary migrants account for 53% and 22% of all employed immigrants; such high percentages are largely due to free movement cross-border workers who make up the bulk of temporary migrants in these countries.

**Conclusion**

Temporary migrants are a heterogeneous group: some participate in managed labour migration programmes, others migrate to study or to participate in exchange programmes. Some temporary migrants enter the host country every day, some return seasonally, and others live in the country for several years straight.

This chapter has, for the first time, provided an estimation of the full-year equivalent contribution of all temporary migrants to the employed population for a subset of OECD countries. Temporary migrants contribute significantly to employment in many OECD countries. In 6 out of 20 countries, they add 2% or more to the total resident employed population.

Research and policy work on the impact of immigration on the labour market has traditionally focused on permanent immigrants. The estimations in this chapter however imply that temporary migrants account for a large share of all immigrants employed in several OECD countries. Consequently, ignoring temporary migrants leads to a rather incomplete picture of the impact of immigration on host countries. To go beyond an accounting exercise, more effort needs to go into collecting and analysing data on temporary migrants.

Despite a consensus in the academic literature that the impact of immigration on the employment and wages of the native-born population is small, it remains a core concern in the public debate. This contradiction is at least partly due to the fact that while temporary movements are overlooked in the literature, they are often at the centre of the public debate. Producing more evidence on the labour market impact of temporary migrants – including non-traditional categories of migration – should therefore contribute to closing the gap between reality and perception.
Notes

1 The number of first issuances does not match the number of arrivals in the host country. A migrant who holds a different type of permit, a student permit, for example, would still be counted as a first permit when applying for a temporary work permit.

2 Switzerland has not signed any bilateral working holiday agreement. In some countries, the number of participants is too small to be seen in the Figure, such as in Greece or Estonia.

3 Nevertheless, family members of temporary labour migrants may apply in many cases for a temporary visitor visa. This type of visa does not give access to the host country labour market. These are not included in the analysis.

4 The fact that a large share of permits issued in 2017 have such long potential duration of stay does not mean that most existing types of permits have a long allowed duration of stay. Instead, the types of permits that allow for a longer stay are also those issued to most migrants across these eight countries.

5 This estimation of the duration of stay in the host country is only valid if there is a stationary equilibrium, which is if the number of migrants entering and leaving the host country on a given permit is stable over the years.

6 Firms with 100 employees or less may request another 58-month permit for workers who remained in the firm for the whole first 58 months in Korea. Workers who pass an advanced language test may also apply for a second period of employment in Korea.

7 The shares are obtained by dividing column (4) by column (6).

8 No estimation of the duration of work is available for working holiday makers in Canada. These migrants receive an open work permit and face no restrictions in the Canadian labour market. It may be that they work on average more than four months per year. Their contribution to the employed population may be higher than 0.15 but is in any case no larger than 0.44.

9 Pooling the LFS of all EU/EFTA countries, 27% of international students from another EU/EFTA country declare working alongside their studies, and the average hours worked are 17 hours per week. Recent work for the United Kingdom shows that only 28% of international students took some form of paid employment (Office for National Statistics, 2018[36]).

References


3. CAPTURING THE EPH \#EMERAL: HOW MUCH LABOUR DO TEMPORARY MIGRANTS CONTRIBUTE…


Annex 3.A. The impact of temporary migration on the host country labour market

A short literature review on the impact of immigration on the host country labour market

Few topics in economic literature have generated such a lively debate in academic and policy circles as the economic impact of immigration. The first section of this annex provides a brief overview of the issues in the literature in order to subsequently highlight the need to study the impact of temporary migration separately from permanent immigration.

The economic literature on the impact of immigration on the host country labour market studies how changes in immigration levels affect the outcomes of natives, mainly wages, but also employment, labour force participation, and even occupational and educational choices.

While an appealingly simple demand and supply framework would predict that an increase in immigration would decrease native wages and displace natives from their jobs, there is some consensus in the academic literature that the overall labour market impact of immigration on the wages of natives is, at most, modest.

A further question is then how immigrants are integrated in the local host economy in the medium to long-run. Different adjustment mechanisms have been investigated. First, an increase in immigration to one region may be counterbalanced by outflows of natives (Borjas and Freeman, 1992[8]; Card, 2001[9]). Second, natives may choose to work in different occupations, for example, communication-language intensive occupations instead of manual labour (Peri and Sparber, 2009[10]; Foged and Peri, 2016[11]). Third, sectors respond to immigration increases by adapting their production processes to incorporate the abundant type of labour. Research for the United States (Lewis, 2004[12]; Card and Lewis, 2007[13]) and for Spain (González and Ortega, 2011[14]) shows that firms do not invest in capital intensive processes when there is a large supply of unskilled labour.

Most concerns about the effect of immigration on the host country labour market focus on the potential negative effect on wages and displacement that results from increased competition. However, immigration also has a balancing positive effect on the demand for native labour. The impact of immigration, permanent or temporary, on the host country labour market depends on the extent to which immigrants increase the consumer base of the host country. This effect is contingent on the immigrants’ income level, their consumption patterns, and the remittances they send abroad. Recent empirical evidence has shown that there is a big positive effect due to immigrants’ consumption and that the effect on native wages is stronger in nontraded industries, which are more reliant on domestic consumption (Borjas, 2013[15]; Olney, 2015[16]; Hong and McLaren, 2015[17]).

A further general equilibrium effect that goes beyond labour markets is the impact of immigration on price levels. Research for the United States shows that low-skilled immigration decreased the price of non-tradable services such as gardening and housekeeping, services in which immigrants are over-represented (Cortés, 2008[18]).
led to an increase in the hours of market work, a decrease in the time spent on housework and an increase in the expenditure on housekeeping for native women at the top of the income distribution (Cortés and Tessada, 2011).

Why study the specific impact of temporary migration on the host country labour market?

Many empirical estimates in the literature are based on permanent migrants or do not distinguish between temporary and permanent migrants. The question is then the extent to which the results found in the literature are reflective of the impact of temporary migration.

This section puts forward four reasons why the labour market impact of temporary migration may differ from that of permanent migration. Annex Box 3.A.1 discusses the methodological concerns with estimating the effect of temporary labour migration with the standard techniques used in the context of permanent immigration.

First, the category of migration mix is different for permanent and temporary migration. Approximately half of permanent migrants who arrived in the OECD countries in 2016 were family migrants or humanitarian migrants, whereas labour migrants accounted only for 9% of the inflows (OECD, 2018). In contrast, the main category of temporary migration is labour migration. Hence, similar magnitude inflows of permanent and temporary migration translate into higher participation in the labour market in the case of temporary migration. Inversely, temporary migration may be restricted to less than one year, hence resulting in a lower migration in full-year equivalent terms than permanent immigration.

Second, temporary labour migration programmes are designed in ways that limit their impact on the host country labour market. Many temporary labour migration programmes, such as seasonal worker programmes or caregiver programmes, aim to address perceived shortages in the host country labour market while ensuring that temporary foreign workers do not displace available native workers. OECD countries typically use instruments such as labour market tests or numerical limits to try to control the impact of temporary labour migration. Hence, in theory, the labour market competition created by these temporary labour migration programmes should be zero.

In addition, temporary migration programmes that are not employment-related impose restrictions on access to the host country labour market, hence limiting the potential impact on native workers. For example, international students are limited in the hours they can work, working holidaymakers are limited in their duration of stay and accompanying family members of temporary migrants are in some cases not allowed to work in the host country.

Third, temporary migrants tend to be concentrated in specific sectors of economic activity. For demand-driven temporary labour migration programmes, the observed sectoral concentration is expected since these migration programmes are designed to address shortages in these sectors. However, the sectoral concentration of temporary migrants has also been documented for categories of migration that are not employment-related, such as international students, or working holidaymakers. Given the sectoral concentration of temporary migrants, their effect on natives working in the same sectors may be larger than that of permanent migrants.

Fourth, indirect effects of immigration on the host country labour market likely differ between temporary and permanent migrants. Temporary migrants differ from permanent immigrants in their economic behaviour – that is their choices in terms of occupation,
human capital investment, consumption and savings. Temporary migrants may save and remit more to the country of origin; they may also consume and invest less in host-country specific human capital. These choices affect the demand for, and the supply of, native labour through general equilibrium effects suggesting that the equilibrium impact of temporary migrants might be quite different from that of permanent migrants.

Annex Box 3.A.1. Modelling the impact of temporary and permanent migration

A distinguishing characteristic of temporary labour migrants is that they migrate to the host country for specific jobs. Therefore, the empirical framework often used to estimate the effect of immigration is not valid in this context.

Permanent immigration is typically modelled as an exogenous labour supply shock. This gives rise to a main challenge in the literature, which is the identification of the effect of immigration in empirical studies since the location choice of immigrants is endogenous to the local labour market conditions.

The credibility of the estimates therefore relies on finding changes in immigration levels that are exogenous to the host country labour market conditions. A strand of the literature uses exogenous events such as the Mariel Boatlift from Cuba in 1980 (Card, 1990[21]) or the repatriation of French-Algerians to France in 1962 (Hunt, 1992[22]) to identify the effect of immigration. Another strand of research relies on instrumental variable techniques to isolate exogenous factors in the migrants’ location choice, such as past immigration settlements (Altonji and Card, 1991[23]).

These empirical strategies do not work in the case of temporary labour migration given that the migration flows are by nature endogenous to the host country labour market conditions. Instead, the study of temporary labour migration would benefit from exploiting changes in immigration policy as done in recent research by Mayda et al. (2018[24]) and Clemens, Lewis and Postel (2018[25]).

A second methodological issue is the fact that some temporary labour migrants face restricted access to the host country labour market; they may be limited to a specific employer, sector or region. Most literature on the impact of immigration is based on economic models in which labour markets are perfectly competitive. The fact that migrants face restricted access to the labour market implies that using the assumption of perfect competition in the labour market is not appropriate. Rather, the specific constraints faced by temporary migrants need to be included in the analysis, as done in some recent papers by Hunt and Xie (2019[26]) and Brochu, Gross and Worswick (2016[27]).

1. This is also an issue for demand-driven permanent labour migration that is not addressed in the literature.
2. Some literature has focused on deviations from perfect competition, such as the importance of minimum wages on the impact of immigration. However, these are restrictions that effect both immigrants and natives in the labour market. The point here is that temporary migrants do not have access to the same labour market than natives.
Available evidence on the impact of temporary migration

Little literature on the impact of immigration focuses on temporary migration. This section reviews some existing evidence from OECD countries focusing first on research that estimates the effect of specific temporary migration programmes, and then on research that analyses the impact of specific groups of temporary migrants.

Programme based evidence

Despite the existence of many temporary labour migration programmes, evaluation of how these programmes affect the wages and the labour market prospects of natives are uncommon. Nevertheless, some evidence does exist.

Seasonal agricultural programmes exists in many OECD countries. A rigorous evaluation of the impact of such a programme on the wages of natives was carried out recently for the bracero programme in the United States by Clemens, Lewis and Postel (2018[25]). The bracero programme started in the mid-1940s and brought almost half a million Mexican seasonal workers to the United States. The programme was terminated in 1964 with the aim of improving the labour market outcomes of domestic farm workers. Clemens, Lewis and Postel (2018[25]) illustrate – by using a difference-in-differences estimation – that abolishing the programme did not raise wages or employment for domestic farm workers in the states most affected by the exclusion of the braceros relative to other states. The paper suggests a model that is compatible with these results. The model features the coexistence of different production technologies: a traditional technology (relatively more labour intensive) and an advanced technology (relatively more land intensive). The wage of farm workers is the same irrespective of the production technology because both coexist in the “diversification cone”, making the marginal product of labour the same. The reduction in labour supply brought about by the end of the programme leads some firms to switch to the advanced technology, but it does not change the land/labour ratio used by each technology and hence does not change the marginal product of labour.

In the high-skilled segment of temporary migration programmes, several studies have studied impact of the H-1B programme in the United States. Mayda et al. (2018[24]) show that after a decrease in the H-1B cap in 2004, the employment of immigrant workers decreased, but the employment of similar natives in the affected firms did not change, consistent with a low degree of substitutability between H-1B and native workers. On the other hand, Doran, Gelber and Isen (2015[28]) investigate the effects of the H-1B lottery and uncover that in 2006/07, additional H-1B visas increased employment only moderately. The authors interpret this as evidence of H-1Bs crowding out native workers.

A study by the New Zealand Ministry of Business, Innovation and Entrepreneurship finds overall little effects of temporary migration on hires and wages of natives within sectors and regions in New Zealand (Ministry of Business, Innovation & Employment, 2018[29]). This study does not evaluate the different existing temporary migration programmes. Nevertheless, it presents some results by visa category, and in particular for the Essential Skills visa, the largest demand-driven temporary migration programme in New Zealand. An increase in temporary migration through this programme is estimated to have a small negative effect on the hiring of natives.

Lee et al. (2016[30]) estimate the effect of the Employment Permit System (EPS) in Korea on several labour market outcomes in the 2004-13 period. They estimate small negative effects on the wages of natives. An increase of 1% in the ratio of foreign workers is associated with a decrease in the wages of Koreans by 0.2-1.1%. Unfortunately, this effect
is not estimated separately for the two main types of visas under the EPS: the E-9 and H-2 visas. While E-9 visa holders are recruited for jobs that are labour market tested and face strict restrictions in the labour market, H-2 visa holders have unrestricted access to the Korean labour market.

**Evidence based on different subgroups of temporary migrants**

Temporary migrants have a tendency to remit a larger share of their income than permanent migrants do. This reduction in consumption while in the host country implies that any positive effect of immigration on the demand for native labour due to increased consumption is likely to be weaker in the case of temporary migration.

Cross-border workers are an extreme example when it comes to the impact of labour mobility on demand for host country goods and services. While they work in the host country, cross-border workers live and consume in their country of origin. Hence, this is the category of temporary migrants that is expected to affect the labour market outcomes of natives most negatively. However, recent research that uses cross-border workers to estimate the impact of immigration on native outcomes finds mixed results. On the one hand, Beerli and Peri (2017[31]) investigate the impact of cross-border workers in Switzerland using variation in the timing of liberalisation of the access to the Swiss labour market to migrants of the neighbouring countries. The authors find no negative effect on the wages of natives. Conversely, when Dustmann, Schönberg and Stuhler (2016[32]) estimate the effect of immigration on wages based on an inflow of cross-border workers in Germany along the German-Czech border, they find more negative effects on native wages and employment. One of the explanations for this more negative effect provided by the authors is the fact that these migrants are cross-border workers, meaning they did not live and consume in Germany, implying a lower demand effect of immigration. However, another potential explanation for this more negative effect in the German context is that the labour supply shock may have been viewed as temporary by the firms and they did not expand their capital in response to the increase in temporary migration.

Working holidaymakers, on the other hand, are likely to have a more positive impact on host-country demand. Given that their primary motivation is travel and is therefore consumption related, working holidaymakers are likely to spend more than other temporary migrants. As a result, they are likely to have a more positive effect on overall job creation. Studies on New Zealand (Workforce Group 2004) and Australia (Tan et al., 2009[33]) estimate that each working holidaymaker creates an average of 0.2 and 0.06 jobs respectively.
Annex 3.B. The estimation strategy

Estimation of the contribution of temporary migrants based on OECD permit data

The aim of the estimation is to transform the data on permits issued and stocks of permits into the contribution in terms of full-year equivalent workers to the host country employed population. The estimation is done for 2017 and separately for temporary labour migrants and other temporary migrants. The reason for the distinction is that temporary labour migrants work for virtually the whole duration of their stay in the host country, whereas other temporary migrants choose whether to work and for what share of their stay if they do so.

Estimating the contribution of temporary labour migrants

Ideally, for each temporary migrant present in the host country for at least one day in a given year, one would need to know how many full days he/she worked during the calendar year. The full-year equivalent contribution of temporary labour migrants would then be the sum of all the days worked by temporary labour migrants in the calendar year.

Unfortunately, no cross-country dataset with such detailed information exists. The estimation in the chapter is based on data on permits issued to temporary migrants in OECD countries collected for this specific purpose, Box 3.1 presents the database. This is the most comprehensive cross-sectional dataset currently available.

However, at the national level, some countries use additional data sources to estimate the population of temporary migrants, such as arrival and departure records or administrative data. For example, the Department of Homeland Security in the United States publishes estimations of the number of temporary migrants present in the territory on an average day of the year based on arrival and departure records.

The estimation in the chapter uses the stock of valid permits at the end of the year (31st of December for most countries or 30th of June in some cases) as a proxy for the full-year equivalent contribution of temporary labour migrants. The underlying assumption is that the number of temporary labour migrants is stable over the year.

While this may seem like a strong assumption, it is likely to hold for many temporary migration programmes across OECD countries, and in particular for those that issue permits longer than one year. Furthermore, several countries provided stock data at several points in the year (for example 30 June and 31 December) which allowed confirmation that the assumption holds.

Using stock data may lead to underestimation of temporary migrants’ contribution in some cases such as for seasonal permits. These are typically issued for a duration less than one year with the permits expiring before the end of the year. In such cases, the number of permits issued is used instead of stock data for the estimation. The assumption made is that the permits are issued for the maximal allowed duration set by the permit rules. Box 3.3 in the chapter provides an example of the estimation for such a seasonal permit in Sweden.
In the United States, as in other OECD countries, there is no direct measurement, nor nationally representative survey that is immediately useful for estimating or measuring the non-immigrant population. To overcome this challenge, the United States Department of Homeland Security (DHS) has developed a statistical model to estimate the size of the non-immigrant population, i.e. temporary migrants, residing in the United States.

The model is based on the construction of visit length frequency tables for each class of admission and country of citizenship. For a given fiscal year, these are built using data on departures from the United States in that year matched to arrival records of the previous ten years. These estimated visit lengths are then applied to all non-immigrant arrivals in the United States in the previous ten years to estimate the probability that the individual stays in the United States for at least a given number of days given his/her class of admission and nationality. Summing the probabilities over each calendar day and each non-immigrant arrival produces a total estimated number of days non-immigrants were present during a given fiscal year. This total is then divided by 365 to yield the average population size for the year.

The DHS estimates that 2.3 million non-immigrants resided in the United States in 2016, of which 1.1 million were temporary workers, 870,000 were students, 240,000 exchange visitors and 90,000 diplomats and other representatives (Baker, 2016[34]). Dependents are also included in these totals for each category. The estimations exclude stays shorter than two months as well as individuals who enter the country seven times or more during the year.

The statistical model used by the DHS overcomes one of the drawbacks of using permit data to estimate the population of temporary migrants, which is that a valid permit does not guarantee that the individual is still in the host country, or even that he/she entered the country in the first place.

The estimation in this chapter differs from that of the DHS in the sense that it focuses on the contribution of temporary migrants to the labour market. The DHS estimation counts all resident migrants alike irrespective of their right to access the labour market.


Some countries did not provide data on stocks of valid permits. In those cases, the estimation is a potential contribution of temporary labour migrants based on the permit rules in terms of allowed duration of stay and the number of permits issued. The descriptive statistics in the chapter show that temporary migrants tend not to use the whole duration of stay allowed by the permits. When permits are issued with a maximal duration of one year, the margin of error is relatively small. However, in some cases, permits are issued for a longer time and the margin of error could be quite large. For example, the H-1B and the L-1 visas in the United States may be valid for up to six years. In these cases, the estimated potential contribution is adjusted by a coefficient (0.55) based on the comparison of potential and estimated duration of stay for other countries.

Temporary labour migrants are assumed to work full-time for their estimated duration of stay in the host country. This is a reasonable assumption given that the main reason for migration is work.
Estimating the contribution of other temporary migrants with work rights

Contrary to temporary labour migrants, the stay of other temporary migrants in the host country is not dependent on their employment. They may have the right to work in the host country but ultimately, it is up to them whether to exercise that right or not.

The contribution of other temporary migrants is expressed in two ways. First, an estimation of the total number of temporary migrants with work rights is expressed as a share of the working age resident population. Second, an estimation of the full-year equivalent number of temporary migrants employed in the host country is expressed as a share of the resident employed population, as done for temporary labour migrants.

To estimate the number of temporary migrants with work rights in the host country and the number of these migrants who choose to work, some assumptions need to be made that depend on the category of migrants. The main categories considered in the analysis are secondary permit holders with work rights – that is dependents of temporary labour migrants or of international students –, working holidaymakers and international students.

Assumptions used to estimate the contribution of secondary permit holders

In some OECD countries, there is a specific permit for dependents of the principal permit holder, whereas in other countries all dependents are issued the same permit. In the latter case, the estimation assumes that the propensity to sponsor dependents is the same for principal applicants of different permits.

The estimation done for secondary permit holders follows the corresponding primary permit holders given that the duration of stay of secondary permit holders is aligned with that of the corresponding principal permit holders. Nevertheless, some adjustments need to be made.

First, the permits issued to spouses or partners of principal applicants are in some cases also issued to their children. Hence, not all dependents contribute to the working age population. Given that there is no information on the age distribution of secondary permit holders, the estimation assumes that 50% of dependents are of working age.

Second, there is no cross-country information available on the share of secondary permit holders who are in employment, or on the duration of their employment spells. The estimation assumes that half of the working age dependents work. Furthermore, all working dependents are assumed to work full-time for their duration of stay in the host country.

Assumptions used to estimate the contribution of working holidaymakers

Working holidaymakers are assumed to stay in the host country for the total duration of their permit. The number of working holidaymakers in the host country in a given year is assumed to be the number of permits issued in that year adjusted by the duration of the permit. Although the exact duration of the permit differs depending on the specific bilateral country agreement, for simplicity, the duration is assumed to be the same (generally one year), for all working holidaymakers irrespective of their nationality. An exception is made for Canada, where permits are issued with a two-year validity. In this case, stock data is used instead of the number of permits issued.

The main migration purpose of working holidaymakers is cultural exchange and as such working holidaymakers do not generally work full-time for the entire duration of their stay. The estimation of the contribution to employment of working holidaymakers assumes that they work full-time for four months in the host country, which is one third of the typical
allowed duration of stay. This assumption is based on estimations done for Australia and New Zealand. For Australia, Tan et al. (2009) estimate that 69% of working holidaymakers work at some point during their stay, and that those who work, work an average of 120 days. For New Zealand, Merwood (2013) estimates that working holidaymakers stay on average eight months in New Zealand and that the average working holidaymaker works four months.

**Assumptions used to estimate the contribution of international students**

International students may work alongside their studies in most of the countries included in the analysis under certain conditions. The specific rules for each country are taken into account in the estimation. In most countries, there are limits on the number of hours per week students are allowed to work, at least during term time. During school breaks, students are often allowed to work full-time. The duration of term time varies across OECD countries. For simplicity, term time is assumed to account for 35 weeks in the year irrespective of the host country considered.

Furthermore, the rules vary depending on the exact visa held, and/or the level of instruction. This distinction is taken into account in the estimation in all cases where the data allows to do so. International students, or some subsets of international students, are only allowed to work on-campus in some countries. However, the distinction between on-campus and off-campus work is not taken into account in the estimation.

The chapter first presents the estimation of the maximal potential contribution of international students in full year full time equivalent assuming that all students work for the maximal duration allowed. Then, the chapter presents an estimated contribution to the employed population assuming that the average international student works for 25% of the maximal duration allowed in one year.

**Estimation of the contribution of free movement temporary migrants in the EU/EFTA**

**Estimating the contribution of temporary free movement labour migrants**

The estimation for the contribution of free mobility temporary migrants to the labour market of EU/EFTA countries is done in a similar spirit to the estimation using the OECD permit data.

The perspective of the exercise in this chapter is that of the country of work. Given that temporary migrants are identified in the LFS data in the country of residence, the first step in the estimation is to add the number of temporary migrants from all countries of residence for each country of work.

The second step is to transform the estimated number of temporary migrants into a full-year equivalent contribution to the employed population in the country of work. There is no information on the exact period spent working abroad in the LFS. The survey is conducted quarterly and individuals report whether they were working abroad the previous week. The estimation assumes that individuals who report having worked abroad the previous week worked abroad for a full quarter. The data provided by Eurostat aggregates the quarterly information at the annual level. Hence, the estimated number of individuals working abroad in a given year is in fact a full-year equivalent estimation based on the quarterly information.

A limitation of this estimation based on the EU-LFS is that it is likely to be an underestimation of the actual number of free movement temporary labour migrants in
EU/EFTA countries. Temporary migrants who are abroad the day of the LFS interview and live by themselves – and thus may not answer the survey by proxy – are not captured in the data.

**Estimating the contribution of free movement international students**

Within the EU/EFTA, international students do not need a permit to study and do not face restrictions on the numbers of hours worked, like third country nationals do.

The estimation of their contribution to the employed population in EU/EFTA countries relies on enrolment data of international tertiary students by country of study available from the UNESCO-OECD-Eurostat (UOE) dataset. Alternatively, one could have used EU-LFS data; however, the samples of international students are too small to be used as a reliable estimation of the share of EU/EFTA international students who work alongside their studies by country of study and even more so of the average number of hours worked.

The estimation assumes that 25% of EU/EFTA international students work 20 hours per week during term time and full-time during school holidays. This assumption is motivated by EU-LFS data pooling all EU/EFTA countries. Over a quarter of international students from another EU/EFTA country declare working alongside their studies. Those who do declare working, declare an average of 17 hours per week. Furthermore, recent survey data for the United Kingdom shows that only 28% of international students took some form of paid employment (Office for National Statistics, 2018[36]).

**Estimating the contribution of free movement posted workers**

The estimation for posted workers follows a similar strategy to the one used for other groups of temporary labour migrants. The focus is on the labour market of the receiving country. Given that the information is reported to the European Commission by sending countries, the estimation first aggregates the information available at the receiving country level.

Unfortunately, only an incomplete picture comes out of this exercise. No information is available on the receiving countries of posted workers who are active in two or more member countries (under Article 13). Furthermore, Norway, Switzerland and the United Kingdom do not provide the breakdown by receiving country for posted workers to a single destination country (under Article 12).

To adjust the number of postings to a full-year equivalent contribution to the destination country labour market, the estimated number of postings by receiving country are weighed by the average duration of postings. Note that this does not correspond to a number of individuals. The same individual may be posted several times, but in that case he/she also contributes several times.

A limitation of this approach is that only 17 members reported information on the duration of postings under Article 12. Additionally, only the average duration by sending country is available and this information is not broken down by receiving country. Hence, the estimation uses the average duration of postings based on the information declared by the 17 countries (98 days) for all postings irrespective of the country of origin or destination.

Similarly, only 21 sending countries report the breakdown of postings under Article 12 by sector of activity. These are aggregated by receiving country and represent an underestimation of the total number of postings given the missing information. The estimation uses the average duration of 98 days to estimate the full-year equivalent of these postings in the construction sector (the largest sector of postings).
## Annex 3.C. Supplementary tables and figures

### Annex Table 3.C.1. Distribution of free-movement temporary migrants across sectors of activity, 2017

Percentages

<table>
<thead>
<tr>
<th>Industry</th>
<th>Workers in the country of residence</th>
<th>Free-movement temporary migrants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All temporary migrants</td>
<td>Temporary migrants employed in a non-neighbouring country</td>
</tr>
<tr>
<td>A. Agriculture, forestry and fishing</td>
<td>4.8</td>
<td>4.7</td>
</tr>
<tr>
<td>C. Manufacturing</td>
<td>14.5</td>
<td>21.4</td>
</tr>
<tr>
<td>F. Construction</td>
<td>6.8</td>
<td>19.1</td>
</tr>
<tr>
<td>G. Wholesale and retail trade; repair of motor vehicles and motorcycles</td>
<td>14.0</td>
<td>8.0</td>
</tr>
<tr>
<td>H. Transportation and storage</td>
<td>5.3</td>
<td>7.9</td>
</tr>
<tr>
<td>I. Accommodation and food service activities</td>
<td>5.0</td>
<td>6.3</td>
</tr>
<tr>
<td>J. Information and communication</td>
<td>3.1</td>
<td>2.8</td>
</tr>
<tr>
<td>K. Financial and insurance activities</td>
<td>2.9</td>
<td>2.5</td>
</tr>
<tr>
<td>M. Professional, scientific and technical activities</td>
<td>5.8</td>
<td>2.7</td>
</tr>
<tr>
<td>N. Administrative and support service activities</td>
<td>4.2</td>
<td>2.9</td>
</tr>
<tr>
<td>O. Public administration and defence; compulsory social security</td>
<td>6.8</td>
<td>1.2</td>
</tr>
<tr>
<td>P. Education</td>
<td>7.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Q. Human health and social work activities</td>
<td>10.9</td>
<td>8.1</td>
</tr>
<tr>
<td>R. Arts, entertainment and recreation</td>
<td>1.9</td>
<td>1.4</td>
</tr>
<tr>
<td>S. Other service activities</td>
<td>2.5</td>
<td>1.4</td>
</tr>
<tr>
<td>T. Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use</td>
<td>1.1</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Note:* Temporary migrants employed in non-neighbouring country (column 3) are a subgroup of all free-movement temporary migrants (column 2). Persons living in Cyprus, Malta or Slovenia and working in another country are not part of the analysis since there is no detailed information available on the foreign countries of work. (..) indicates cells that are too small for publication. The rows do not add up to 100 because of missing cells.


[StatLink](http://dx.doi.org/10.1787/888933990178)
### Annex Table 3.C.2. Distribution of free-movement temporary migrants across occupations, 2017

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Workers in the country of residence</th>
<th>Free-movement temporary migrants</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All temporary migrants</td>
<td>Temporary migrants employed in a non-neighbouring country</td>
<td></td>
</tr>
<tr>
<td>1. Managers</td>
<td>6.4</td>
<td>5.0</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>2. Professionals</td>
<td>19.9</td>
<td>15.0</td>
<td>9.9</td>
<td></td>
</tr>
<tr>
<td>3. Technicians and associate professionals</td>
<td>14.7</td>
<td>15.2</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>4. Clerical support workers</td>
<td>8.8</td>
<td>4.8</td>
<td>..</td>
<td></td>
</tr>
<tr>
<td>5. Service and sales workers</td>
<td>17.7</td>
<td>12.2</td>
<td>11.7</td>
<td></td>
</tr>
<tr>
<td>6. Skilled agricultural, forestry and fishery workers</td>
<td>3.9</td>
<td>..</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>7. Craft and related trades workers</td>
<td>11.3</td>
<td>23.3</td>
<td>30.6</td>
<td></td>
</tr>
<tr>
<td>8. Plant and machine operators, and assemblers</td>
<td>7.5</td>
<td>11.1</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>9. Elementary occupations</td>
<td>9.2</td>
<td>10.7</td>
<td>17.2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Temporary migrants employed in non-neighbouring country (column 3) are a subgroup of all free-movement temporary migrants (column 2). Persons living in Cyprus, Malta or Slovenia and working in another country are not part of the analysis since there is no detailed information available on the foreign countries of work. (..) indicates cells that are too small for publication. The rows do not add up to 100 because of missing cells.

**Source:** Labour Force Surveys (Eurostat).

**StatLink** [http://dx.doi.org/10.1787/888933990197](http://dx.doi.org/10.1787/888933990197)

### Notes

1. For an in-depth review of the impact of immigration on the host country labour market, see Blau and Kahn (2015)\(^{(37)}\), Dustmann, Glitz and Frattini (2008)\(^{(38)}\) or Peri (2016)\(^{(39)}\).

2. The effect on some groups of natives, in particular the least skilled, is still open to debate.
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