

## JRC SCIENCE FOR POLICY REPORT

# Learning Mobility II

## An estimation of the benchmark

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## **Abstract**

Within the strategic framework for European cooperation in education and training (ET 2020), a EU benchmark was set in 2011 envisaging that 'by 2020, an EU average of at least 20 % of higher education graduates should have had a period of higher education-related study or training (including work placements) abroad, representing a minimum of 15 ECTS credits or lasting a minimum of three months'. This report provides the first estimates of this benchmark and of its degree and credit mobility components, for the EU as a whole and for each Member State, using the newly available data from the UNESCO, OECD and Eurostat data collection referring to the academic year 2015/2016.

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## **Executive summary**

### ***Policy context***

According to the benchmark for mobility in higher education (Learning Mobility in Higher Education benchmark, LMHE), agreed by the Council of Ministers of Education, Youth, Culture & Sport during its meeting on 29 November 2011: 'by 2020, an EU average of at least 20% of higher education graduates should have had a period of higher education-related study or training (including work placements) abroad, representing a minimum of 15 ECTS credits or lasting a minimum of three months'. Data on the degree mobility component of the benchmark for graduate mobility have become progressively available starting from 2015. Based on the first data released, JRC produced in 2015 the very first estimates of the degree mobility component of the learning mobility benchmark, with information referring to the academic year 2012/2013. The first data on graduates who had a 'credit mobility' stay throughout the cycle of study were released in mid-2018, referring to the academic year 2015/2016. 2018 therefore marks the time when both degree and credit mobility components are finally available (although with limitations and caveats due to incomplete data coverage, as a result of derogations or lack of data in some countries), and the benchmark on learning mobility for tertiary education can be computed. For this reason, the current report provides the first estimates of the benchmark and of its degree and credit mobility components, for the EU as a whole and for each Member State, using data from the UNESCO, OECD and Eurostat data collection, referring to the academic year 2015/2016.

### ***Main findings and key conclusions***

According to the estimates, the LMHE indicator for the reference period is 10.7% (amounting to more than 475 thousand mobile graduates in the EU). While this is very far from the 2020 target of 20%, it should be highlighted that this number might be underestimating the real phenomenon since the available data currently provide only an incomplete picture. The outward credit mobility indicator for graduates is estimated around 7.6% (almost 337 thousand graduates), while for degree mobility it is 3.1% (more than 138.5 thousand). Around half credit mobile graduates from the EU (i.e. more than 185 thousand graduates) had a mobility stay under an EU programme, while the other half did so under different types of schemes. The estimations of the benchmark by ISCED levels suggest that a higher educational level is associated with higher shares of learning mobility. Turning to inward mobility, in 2016 inward degree mobile graduates represented on average 8.6% of higher education graduates with an EU origin (amounting to 383 thousand graduates).

Other estimations in terms of origin and destination of mobile graduates, as well as type of scheme under which credit mobility takes place, are computed in this report. In general terms, the main destination of mobile graduates with EU origin is another EU28 country. When considering inward degree mobile graduates, the picture is more diverse: 31% of them moved between two EU28 countries, while 38% are from Asia and 10% from a European country out of the EU.

The report also shows that the lack or incompleteness of inward degree mobility data for some destination countries have repercussions on outward mobility rates for all countries, leading to an underestimation of the learning mobility benchmark that, while small for the EU as a whole, could be particularly relevant for some countries.

# 1 Introduction

Since the 2011 Communication (COM(2011) 567), learning mobility of young people has been a priority in the agenda for the modernisation of Europe's higher education system. The Council conclusions on a benchmark for learning mobility (2011/C 372/08) specified that by 2020 'an EU average of at least 20% of higher education graduates should have had a period of higher education-related study or training abroad'.

To quantify and measure this benchmark, in 2015, a methodological manual on learning mobility in tertiary education (European Commission, 2015) was developed, which provides the official statistical definition of mobility adopted for the benchmark on learning mobility in higher education. This official definition identifies learning mobility in tertiary education as the physical crossing of national borders between a country of origin and a country of destination, and subsequent participation in activities relevant to tertiary education (in the country of destination). The country of origin is defined as the country of prior education, i.e. the country where the upper secondary diploma was obtained.

Two types of mobility are identified in the manual, namely degree mobility and credit mobility, both of which are included in the benchmark. Degree mobility is defined as the physical crossing of a national border to enrol in a degree programme at tertiary level in the country of destination. The degree programme would require the students' presence for the majority of courses taught. Credit mobility is defined as temporary tertiary education and/or study-related traineeship abroad within the framework of enrolment in a tertiary education programme at a 'home institution' (usually) for the purpose of gaining academic credit (i.e. credit that will be recognised by that home institution).

Data on the degree mobility component of the benchmark for graduate mobility has become progressively available starting from 2015. Based on the first data released, JRC <sup>(1)</sup> produced in 2015 the very first estimates of the degree mobility component of the learning mobility benchmark, with information referring to the academic year 2012/2013. Results from this study showed that based on the available data, the EU benchmark for the reference period 2013 was 2.9%. Although that was very far from the 2020 target of 20%, it is important to take into account that due to data availability only information about degree mobility was included in the computation of the benchmark, as the credit mobility data was not collected at that time and country coverage was not complete.

The first data on graduates who had a 'credit mobility' stay throughout the cycle of study was released in mid-2018, referring to the academic year 2015/2016. 2018 therefore marks the time when both degree and credit mobility components are finally available (although with some limitations and caveats), and the benchmark on learning mobility for tertiary education can be computed. For this reason, the current report provides the first estimates of the benchmark, using data from UNESCO, OECD and Eurostat (hereafter UOE) referring to the academic year 2015/2016 (2016) for benchmarking purposes.

The main purpose of this report is to provide the Commission with:

1. First estimates of the tertiary education outward mobility benchmark, also with a distinction between the degree and credit mobility components.
2. An overview of outward credit mobility by type of mobility scheme: given data limitations, the report will show the share of credit mobile graduates under EU programmes (Erasmus+ or other EU programmes) vs all other schemes (credit mobility under other international/national programmes and credit mobility in other programmes).

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<sup>(1)</sup> Flisi, S., Dinis da Costa, P., Soto-Calvo, E. (2015). Learning Mobility. EUR 27695. doi:10.2760/590538

3. A picture of the areas of destination of mobile graduates, namely:
  - Outward mobility by area of destination (EU28/EFTA/Rest of the world) for degree mobile graduates;
  - Outward mobility by continent of destination (EU28/Other Europe/Africa/North America/Caribbean, Central and South America/Asia/Oceania/Not specified) for credit mobile graduates.
4. An overview of inward degree mobility, covering:
  - Estimates of the share of inward graduate degree mobility (using the same denominator as for the outward mobility benchmark);
  - An analysis of inward mobility by continent of origin for degree mobile graduates.
5. An estimate of the relevance of the component of graduate degree mobility currently not available from official UOE data for three EU countries (FR, SI and SK).



## 2 Policy background

Improving student mobility is a core goal of the European Higher Education Area and a major policy priority of the EU agenda for modernising higher education. As stated in the 2011 Council conclusions on the benchmark for mobility, 'learning mobility is widely considered to contribute to enhancing the employability of young people through the acquisition of key skills and competences, including especially language competences and intercultural understanding, but also social and civic skills, entrepreneurship, problem-solving skills and creativity in general'.

Promoting student mobility has been a major focus in the European political agenda over the last decades. According to OECD (2018), the number of foreign students engaged in tertiary education programmes worldwide has exploded in past few decades, rising from 2 million in 1999 to 5 million 17 years later. In the OECD area, there were 3.5 million international or foreign students <sup>(2)</sup> for study purposes in 2016, around half of which in the EU. Strategic objectives and specific benchmarks have been proposed to maintain and increase learning mobility across the EU and policy and programme initiatives have been set up to achieve these targets (e.g. Europe 2020 Strategy, Erasmus+ 2014-2020 Programme). However, despite these learning mobility initiatives to promote students' mobility across Europe, the Mobility Scoreboard from the European Commission/EACEA/Eurydice (2016) suggests that there are still large differences in the facilitators and constraints for mobility among the Member States (MSs).

### 2.1 Policy context of learning mobility in higher education in Europe

Specific European policies have aimed to foster student mobility over the last decades, starting with the Youth for Europe I programme in 1987, which promoted exchanges in the Community among young people <sup>(3)</sup>. A decade later, in the Sorbonne Declaration (1998) <sup>(4)</sup>, European countries were called to enhance mobility for teaching and learning. Ever since, a proliferation of European policies giving priority to mobility in higher education has taken place, including:

- The 14<sup>th</sup> of December 2000 Resolution of the Council and of the Representatives of the Governments of the Member States concerning an action plan for mobility <sup>(5)</sup>, where an action plan to define and democratise mobility in Europe, promote appropriate forms of funding, increase mobility and improve learning mobility conditions was approved.
- The 10<sup>th</sup> of July 2001 Recommendation of the European Parliament and the Council on mobility within the Community for students, persons undergoing training, volunteers, teachers and trainers <sup>(6)</sup>: here the Member States were recommended to take the appropriate measures to remove obstacles and provide facilities for learning mobility to students, persons undergoing training, volunteers, teachers and trainers by (among others) setting up a group of experts, continuing the cooperation with the Member States and the social partners and periodically reporting on the progress of the adoption of these measures to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions.

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<sup>(2)</sup> *Foreign students* are defined as 'those who are not citizens of the country in which they are enrolled and where the data are collected' while *international students* are 'those who left their country of origin and moved to another country for the purpose of study' (OECD, 2018: p. 225).

<sup>(3)</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31988D0348&from=EN>

<sup>(4)</sup> [http://www.ehea.info/uploads/declarations/sorbonne\\_declaration1.pdf](http://www.ehea.info/uploads/declarations/sorbonne_declaration1.pdf)

<sup>(5)</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:42000Y1223%2801%29&from=EN>

<sup>(6)</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001H0613&from=EN>

- The 18<sup>th</sup> of December 2006 Recommendation of the European Parliament and of the Council on transnational mobility within the Community for education and training purposes <sup>(7)</sup>, where the adoption and promotion of the European Quality Charter for Mobility <sup>(8)</sup> and other mobility initiatives was recommended to the Member States.
- The 25<sup>th</sup> of May 2007 Council conclusions on a coherent framework of indicators and benchmarks for monitoring progress towards the Lisbon objectives <sup>(9)</sup> in education and training <sup>(10)</sup>: here, regarding the indicators and benchmark for monitoring progress towards the Lisbon objectives in Education and Training, the Commission was invited to make full use of the existing data on (among other topics) cross-national mobility of students in higher education.
- The 21<sup>st</sup> of November 2007 conclusions of the Council and of the Representatives of the Governments of the Member States on youth mobility <sup>(11)</sup>: here Member States were invited to develop the scope for mobility for all young persons, provide better information about existing mobility programmes, simplify procedures, widen and diversify the sources of funding for youth mobility, apply the principles enshrined in the European Quality Charter for Mobility in education and training to all forms of youth mobility.

More recently, the European Education and Training 2020 framework (ET 2020) proposed by the Council in 2009 <sup>(12)</sup> set up four strategic objectives to support the improvement of national education systems in Europe:

- Making lifelong learning and mobility a reality;
- Improving quality and efficiency of education and training;
- Promoting equity, social cohesion and active citizenship;
- Enhancing creativity and innovation, including entrepreneurship, at all levels of education and training.

The 2009 Council Conclusions also called for the submission of a proposal for a learning mobility benchmark, focusing on higher education, but also inviting the Commission to study the possibility of extending the benchmark to include vocational education and training and teacher mobility.

The September 2011 Communication on an agenda for the modernisation of Europe's higher education system (COM(2011) 567) also identified the promotion of mobility and cross-border cooperation as one of the main targets to strengthen the quality of higher education.

In the 29<sup>th</sup> of November 2011 meeting <sup>(13)</sup>, the Council of Ministers of Education, Youth, Culture and Sport agreed on a specific benchmark for learning mobility, which differentiates between two main areas – higher education and initial VET. Consequently, the benchmark consists of two indicators:

- By 2020, an EU average of at least 20 % of higher education graduates should have had a period of higher education-related study or training (including work placements) abroad, representing a minimum of 15 European Credit Transfer System (ECTS) credits or lasting a minimum of three months.
- By 2020, an EU average of at least 6 % of 18-34 year-olds with an initial vocational education and training (IVET) qualification should have had an IVET-related study or

<sup>(7)</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006H0961&from=EN>

<sup>(8)</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=URISERV:c11085&from=EN>

<sup>(9)</sup> [http://www.europarl.europa.eu/summits/lis1\\_en.htm](http://www.europarl.europa.eu/summits/lis1_en.htm)

<sup>(10)</sup> [http://www.consilium.europa.eu/uedocs/cms\\_Data/docs/pressdata/en/educ/94290.pdf](http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/educ/94290.pdf)

<sup>(11)</sup> [http://pjp-eu.coe.int/documents/1017981/1663188/Council-Conclusions-on-youth-mobility\\_2008.pdf/4ef23593-8c19-49d2-abef-a89213b9b051](http://pjp-eu.coe.int/documents/1017981/1663188/Council-Conclusions-on-youth-mobility_2008.pdf/4ef23593-8c19-49d2-abef-a89213b9b051)

<sup>(12)</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009XG0528%2801%29&from=EN>

<sup>(13)</sup> [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/educ/126380.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/educ/126380.pdf)

training period (including work placements) abroad lasting a minimum of two weeks, or less if documented by Europass.

Additionally, in the same meeting it was also agreed that: 'it is also important to accompany the benchmark with an indicator covering any type of learning mobility experienced by young people, including mobility which takes place in formal and non-formal settings' (Council of the European Union, 2011, p.4).

The same Council conclusions (2011/C 372/08) also invited Member States to 'improve data collection on learning mobility within all cycles of higher education, initial vocational education and training, and youth learning mobility in general, in order to measure progress against the European benchmark'.

Within the same document, the Commission was invited to:

- Work with and support the Member States, in particular with the help of Eurostat, to improve the availability of relevant indicators and statistics during the period up to 2020. In doing so, the best possible use should be made of the statistical data and household surveys available, with a view to minimising administrative burdens and costs <sup>(14)</sup>.
- Examine, in particular by means of regular progress reports, the degree to which the mobility objectives set under the 'ET 2020' framework are being met.
- Report back to the Council by the end of 2015, with a view to reviewing and, if necessary, revising the European benchmark on learning mobility [...].

The relevance of learning mobility has been recently reaffirmed in the 2017 Communication on a renewed EU agenda for higher education (COM(2017) 247 final) <sup>(15)</sup>, as well as in the one on Strengthening European Identity through Education and Culture (COM(2017) 673 final) <sup>(16)</sup>. Building on this, in its December 2017 Conclusions, the European Council called on Member States, the Council and the Commission to take forward a number of initiatives to promote learning mobility <sup>(17)</sup>.

## 2.2 A learning mobility indicator

This report will focus on the first of the two benchmark indicators mentioned in the previous section, namely learning mobility in higher education <sup>(18)</sup>. Data to monitor this indicator was not available at the time the benchmark was set. While the UOE <sup>(19)</sup> has been collecting data on student mobility since the 1990s, information on graduate mobility was not collected. A Eurostat Task Force was set up to work on the development

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<sup>(14)</sup> In response to the Council conclusions, the Commission Regulation 912/2013 on statistics on education and training systems included requirements on student and graduate mobility data. Data collection based on this Regulation serves as the main source for measuring learning mobility in the EU.

<sup>(15)</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496304694958&uri=COM:2017:247:FIN>

<sup>(16)</sup> [https://ec.europa.eu/commission/sites/beta-political/files/communication-strengthening-european-identity-education-culture\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/communication-strengthening-european-identity-education-culture_en.pdf)

<sup>(17)</sup> <http://www.consilium.europa.eu/media/32204/14-final-conclusions-rev1-en.pdf>

<sup>(18)</sup> In order to gather data for the benchmark indicator on IVET mobility, a pilot data collection was carried out in 2014, with the use of household surveys. Results showed that IVET mobility is such a rare phenomenon that household surveys cannot be considered as the best tool to capture it. Based on the pilot data collection and discussions with Member State authorities, in its [Progress report on a Learning Mobility Benchmark](#) (COM(2017) 148 final), the Commission concluded that it would be worth exploring the use of administrative data and review the feasibility of using such data to underpin the benchmark on IVET mobility. Accordingly, the Commission initiated a study to assess the feasibility to collect IVET mobility data using administrative data sources.

<sup>(19)</sup> The UOE is a joint data collection of international statistics on education and training systems administrated by the three international organisations: the United Nations Educational, Scientific, and Cultural Organisation Institute for Statistics (UNESCO-UIS), the Organisation for Economic Co-operation and Development (OECD) and the Statistical Office of the European Union (EUROSTAT). Commission Regulation (EU) No 912/2013 of 23 September 2013 specifies the details for data collection.

of a methodology and harmonization of concepts for collecting learning mobility statistics. This resulted in a methodological manual on learning mobility (last updated in 2015) <sup>(20)</sup>, which details the scope and the types of learning mobility in higher education; further defines (in statistical terms) the EU benchmark on learning mobility in tertiary education; and specifies additional data needs as expressed by EU policy-makers regarding learning mobility statistics.

In the manual, **learning mobility** is defined as the physical crossing of national borders between a country of origin and a country of destination and subsequent participation in activities relevant to tertiary education (in the country of destination) <sup>(21)</sup>.

As reported in the manual: 'Mobile students/graduates are defined by their country of origin. The country of origin is defined as the country of prior education i.e. country where upper secondary diploma was obtained <sup>(22)</sup>. If the information on country of upper secondary diploma is not available, the country of prior residence can be used as a proxy. Citizenship is the least preferred option as a proxy of country of origin. Before 2016, data on mobile students/graduates shall be provided using the national definition of 'country of origin' (preference to prior education, vs. residence, vs. citizenship). Starting in 2016, the definition of country of origin to be used should be the country where the upper secondary diploma was awarded or the best national estimate.' Despite this provision, there are still several cases in which the country-specific definition of country of origin deviates from this one.

A **graduate** is a person who, during the reference school or academic year, has successfully completed an education programme.

Two types of mobility in relation to graduates are identified, namely degree mobility and credit mobility, both of which are included in the benchmark.

**Degree mobility** is defined as the physical crossing of a national border to enrol in a degree programme at tertiary level in the country of destination. The degree programme would require the students' presence for the majority of courses taught.

Degree mobile graduates are graduates whose country of origin (preference to prior education, vs. residence, vs. citizenship) is different from the country where the graduation at the given tertiary ISCED level is obtained.

More specifically, **tertiary degree mobile graduates** are defined as graduates who were:

- *in formal education as defined in the ISCED 2011 classification <sup>(23)</sup>;*
- *in a tertiary-level study programme. Tertiary-level study covers programmes classified in ISCED levels 5, 6, 7 or 8 according to the ISCED 2011 classification;*
- and*
- *having received the leaving certificate of their upper secondary programme (ISCED level 3 or 4 completion with access to tertiary education programmes) in a country different from the one where their institution of tertiary degree graduation is located.*

The country where they received their upper secondary leaving certificate is defined as their **country of origin** and the country where the tertiary programme is provided is the **country of destination**.

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<sup>(20)</sup> The manual can be found [here](#).

<sup>(21)</sup> The change between different (sub-) national learning systems which does not involve the physical crossing of a national boundary is not considered as learning mobility.

<sup>(22)</sup> ISCED level 3 or 4 completion with access to tertiary education programmes.

<sup>(23)</sup> <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>

**Credit mobility** is defined as temporary tertiary education or/and study-related traineeship abroad within the framework of enrolment in a tertiary education programme at a 'home institution' (usually) for the purpose of gaining academic credit (i.e. credit that will be recognised in that home institution).

Graduates who have had a credit mobility stay are graduates from a given tertiary ISCED level programme who have had a temporary tertiary education study period and/or work placement abroad within the ISCED level programme.

**Tertiary credit mobile graduates** are graduates:

- *in formal education as defined in the ISCED 2011 classification;*
- *in a tertiary-level study programme. Tertiary-level study covers programmes classified in ISCED levels 5, 6, 7 or 8 according to the ISCED 2011 classification; and*
- *who spend an education and training period in a country different from their country of full registration/graduation (i.e. the country where they are regularly enrolled/obtain their diploma) in the perspective of making those credits gained abroad recognised in the institution of full registration ('home institution'). This period of tertiary level study or training abroad should take place during the ISCED tertiary level programme from which the student graduates and should be recognised towards a degree by the home institution.*

For the purposes of the benchmark, only credit mobility stays representing a minimum of 15 ECTS credits or lasting a minimum of three months are taken into account.

The **Learning Mobility (LM) in Higher Education 2020 benchmark (LMHE2020)** focuses on outward mobility (to anywhere in the world) of graduates (not students enrolled).

The manual establishes that the benchmark is computed at the EU level as the number of EU originated mobile graduates (as defined in the benchmark, i.e. either credit or degree mobility categories, with a minimum length of stay abroad) expressed as a percentage of all graduates whose origin (i.e. country of upper secondary diploma) is in the EU, following this formula:

$$\text{LMHE 2020} = \frac{\text{number of EU originated mobile graduates}}{\text{number of EU originated graduates}} \times 100$$

According to the manual, the denominator of this ratio is the population of graduates with country of origin in the EU. The numerator is the total number of graduates with country of origin in the EU who are mobile. It includes those who are exclusively credit mobile; those who are exclusively degree mobile within the EU and from the EU to the rest of the world <sup>(24)</sup>; and those who are dual mobile graduates.

In order to calculate the benchmark, the following data is therefore needed:

- Outward mobility data on tertiary graduates (ISCED 5-8) of an EU origin (their country of upper secondary diploma was an EU country) who took their degree abroad. These are the degree mobile graduates. Data on outward degree mobile graduates from a given country are not available from the country of origin, but it is possible to use data on inward degree mobile graduates reported by each of the possible destination countries (EU and non-EU countries) to retrieve this information.
- Outward mobility data on tertiary graduates (ISCED 5-8) of an EU origin (their country of upper secondary diploma was an EU country) who graduated in their country of origin, but took part of their degree abroad. These are the credit mobile graduates. Unlike degree mobility, information on outward credit mobile graduates from an EU country is available from the country of origin.

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<sup>(24)</sup> As a consequence of this, data from non-EU destination countries is fundamental for the calculation of the benchmark.

### 3 Data sources and methodology

The data source for the report is the UOE. The reference academic year is 2015/2016.

As mentioned before, four main groups of graduate mobility indicators will be provided, namely estimates of (1) outward mobility (i.e. the learning mobility benchmark); (2) outward credit mobility by type of mobility scheme; (3) inward degree mobility; and (4) areas of origin and destination of mobile graduates.

All indicators will be provided for tertiary education overall (ISCED 5 to 8) and by single ISCED level; and for the EU28 as a whole, as well as for the single EU MSs. All figures will refer to graduates, and not to students/enrolments.

#### 3.1 Outward graduate mobility: the learning mobility benchmark

This report provides estimates of the learning mobility benchmark overall (i.e. covering both degree and credit mobility), and of the single components separately.

##### 3.1.1 Degree mobility data

As far as degree mobility is concerned, the base dataset used is the one on 'Degree mobile graduates from abroad by education level, sex and country of origin' (Eurostat online data code *educ\_uoe\_mobg02*; last update considered: 03 September 2018), which provides information on the number of degree mobile graduates at tertiary education level (overall – i.e. for ISCED 5-8 – and for the individual ISCED levels) in each destination country. In this dataset, information is therefore provided by the destination country of mobile graduates, and disaggregated by country of origin <sup>(25)</sup>. The dataset covers EU countries (although FR is missing), IS, NO, CH, MK, RS and TR <sup>(26)</sup>.

Information on a set of non-European destinations was added from a special extraction provided by OECD. This additional dataset, which also provides figures by country of origin and single level of educational attainment, covered AUS, BR, CAN, CL, CO, IL, NZ and RUS. Information is therefore available for 41 destination countries.

Combining both datasets, home/host country matrices were created – for ISCED 5-8 together, and for the single ISCED levels –, with origin countries on the rows (where the origin countries available are those from Eurostat *educ\_uoe\_mobg02* dataset), and destination countries in the columns (coming from Eurostat *educ\_uoe\_mobg02* for European countries, and from the special extraction for non-European ones).

For each country of origin X, the number of outward degree mobile graduates is the sum of all destinations available for each row of the abovementioned matrix – so it includes all graduates from country X that graduated in countries other than country X (i.e. including

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<sup>(25)</sup> While country of origin would ideally be defined as country of prior education, i.e. 'country where upper secondary diploma was awarded', the data collection for the academic year 2015/2016 still sees some countries using a different definition, which can be either country of usual residence or country of citizenship.

According to Eurostat, the countries covered in the *educ\_uoe\_mobg02* dataset adopted the following definitions of country of origin (the full list can be found [here](#)):

- country of prior education or upper secondary diploma: BE, DK, DE, EL, CY, LV, LT, LU, NL, AT, PL, PT, RO, FI, NO and CH;
- country of usual residence: EE, IE, ES, FR, HR, SI, UK (domicile, which refers to the students' home or permanent address prior to entering their course) and MK;
- country of citizenship: CZ, IT, HU, MT and SK. For SE, international students are defined as students who have a student residence permit or are either non-residents or have moved to Sweden not more than six months before starting their studies (24 months for ISCED 8); students with student residence permit are reported by country of citizenship while other students are reported by country of birth.
- estimations: BG.

<sup>(26)</sup> For the list of country codes used in this briefing, see the Section 'List of Country Codes and Abbreviations'.

both European and non-European countries, whenever available). This is therefore the sum of figures provided by each host country separately <sup>(27)</sup>.

In order to compute the benchmark, the number of inward mobile graduates is also needed, as will be explained later on. For each host country X, the total number of inward mobile graduates is the sum of graduates in country X coming from any other country; this is the value of WRL\_X\_REP from Eurostat dataset *educ\_uoe\_mobg02*.

### 3.1.2 Credit mobility data

Data on credit mobile graduates are provided in the Eurostat dataset on 'Credit mobile graduates (at least 3 months abroad) by education level, type of mobility scheme, type of mobility and sex' (Eurostat online data code *educ\_uoe\_mobc01*; last update considered: 19 July 2018), which provides information on the number of graduates who have had a 'credit mobility' stay of a minimum duration of three months or representing at least 15 ECTS points throughout the cycle of study. Figures are provided for the single ISCED levels only. Unlike degree mobility information, here data are collected at the level of the country of origin, defined in this case as the country where the graduates are regularly enrolled/obtain their diploma (i.e. the country of full registration/graduation, that is, where the institution of full registration – the 'home institution' – is located). As a consequence, the figures reported in the dataset are already related to outward mobility, as required for the benchmark calculation. Information is available for 25 EU countries (all but BE, EE and IE) <sup>(28)</sup>, CH, MK, NO and RS.

An additional distinction needs to be made among credit mobile graduates. As a matter of fact, the learning mobility benchmark is not a simple sum of degree and credit mobile graduates: graduates who are both degree mobile and credit mobile (dual mobility status) shall be identified in order to avoid double counting. According to the methodological manual on learning mobility, for the computation of the EU benchmark, when a student graduates in a country different from the country of origin (i.e. is degree mobile), degree mobility takes precedence over any credit mobility stays within the ISCED level, as it is longer in duration; the number of credit mobile graduates needed to compute the EU benchmark should therefore exclude those that are degree mobile. This aspect has been taken into account in the data collection: the *educ\_uoe\_mobc01* dataset, in providing information about the type of programme under which the credit mobility takes place (EU programmes, other international/national programmes, other programmes), also identifies the sub-category of credit mobile graduates who were not degree mobile (*CM\_GRAD\_NDEG – Graduates with credit mobility of at least 3 months or 15 ECTS points who were not degree mobile*) <sup>(29)</sup>. This is the category taken into account in the calculation of the benchmark <sup>(30)</sup>.

### 3.1.3 Computation of the learning mobility benchmark

Starting from these datasets, the learning mobility benchmark is calculated in the following way.

The total outward mobility rate (i.e. the overall benchmark, including both degree and credit mobile graduates) for country X is calculated as

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<sup>(27)</sup> It should be noted that, since each destination country can use a different definition of country of origin, some mismatch may occur in the figures. Moreover, this way of calculating the total number of outward mobile graduates implies that all caveats and notes related to data coming from each destination country apply to the other countries considered.

<sup>(28)</sup> BE will provide credit mobility data by the end of 2018. EE and IE did not provide any data.

<sup>(29)</sup> This information is not available for CZ, EL, HR and HU, which are not able to provide this distinction.

<sup>(30)</sup> While the benchmark uses data on mobile graduates whose country of origin (i.e. country of upper secondary diploma) is an EU country, in credit mobility data the country of origin is the country of full registration/graduation. However, the exclusion of those credit mobile graduates who are also degree mobile allows using in the calculation only the graduates whose country of origin is the country of graduation.

$$\text{LM Benchmark}_X = \frac{\text{outward degree mobile graduates from (i. e. originated in) country X} + \text{outward credit mobile graduates who were not degree mobile from country X}}{\text{graduates originating in country X}} \times 100$$

According to the official definition of the mobility indicator, the denominator should be the number of graduates originated in country X. In order to build the closest possible proxy for this value, the main dataset used is 'Graduates by education level, programme orientation, completion, sex and age' from Eurostat (online data code *educ\_uoe\_grad01*; last update considered: 15 August 2018), which provides the number of total graduates in each country by level of educational attainment. Since these figures include also inward degree mobile graduates, and exclude outward degree mobile ones, in order to correct the formula the denominator for country X is calculated as follows:

$$\begin{aligned} & \text{Number of graduates in country X (from } \textit{educ\_uoe\_grad01} \text{)} \\ & - \text{Inward degree mobile graduates from any other country to country X} \\ & + \text{Outward degree mobile graduates from country X to any other country}^{(31)} \end{aligned}$$

Credit and degree mobility rates are calculated considering only one component at the numerator. Indicators are computed by country (for each EU28 country), as well as for EU28 as a whole.

For the EU28 aggregate indicators (i.e. for the real learning mobility benchmark), the computation is as follows:

$$\text{LM Benchmark}_{\text{EU28}} = \frac{\text{outward degree mobile graduates from the EU} + \text{outward credit mobile graduates who were not degree mobile from the EU}}{\text{graduates originating in the EU}}$$

The total number of outward degree and credit mobile graduates for EU28 is computed as the sum of outward mobile graduates whose country of origin is an EU28 country.

The denominator is computed with a procedure similar to the one for the individual countries, that is:

$$\begin{aligned} & \text{Number of graduates in EU countries (from } \textit{educ\_uoe\_grad01} \text{ – summed up manually)} \\ & - \text{Inward degree mobile graduates from non-EU to EU countries} \\ & + \text{Outward degree mobile graduates from EU to non-EU countries}^{(32)} \end{aligned}$$

Mobility rates are computed for each ISCED level separately, and for ISCED 5-8 overall. For the latter, the data used are the aggregate figures provided by Eurostat, or when this is missing, the sum of the individual levels available in the datasets.

### 3.1.4 Data issues and caveats

When computing mobility indicators, some issues and caveats need to be taken into account. The major issue concerns the fact that, as previously mentioned, the information on degree mobile graduates is collected at the level of the destination country (see Section 3.1.1). As a consequence, the computation of the degree mobility

<sup>(31)</sup> The difference between inward and outward degree mobile graduates (Inward degree mobile graduates from any other country to country X - Outward degree mobile graduates from country X to any other country) gives the number of net degree mobile graduates for country X.

<sup>(32)</sup> The difference between inward and outward degree mobile graduates (Inward degree mobile graduates from non-EU to EU countries - Outward degree mobile graduates from EU to non-EU countries) gives the number of net degree mobile graduates for the EU as a whole.



component of outward mobility rates for a country takes into account figures provided by all the other countries. This implies that the reliability of the outward indicator for a country depends on the quality and detail of the information provided by other countries. To have a complete picture of outward mobility, ideally all destination countries should be available; as mentioned, however, only 41 destination countries provide data. A rough view of the dimension of the missing part can be obtained from figures about mobile students, for whom data coverage is somewhat wider than for mobile graduates. Combining OECD and Eurostat data on mobile students by country of origin, 48 destination countries are available for 2016, summing up to around 673 thousand mobile students from EU28 countries; of these, 61 thousand are enrolled in the 6 non-EU countries not covered by mobile graduate data <sup>(33)</sup>, and another 40 thousand in FR. These figures suggest that around 15% of mobile students from the EU are studying in countries for which mobile graduate information is not available. According to these available data, the main outstanding missing destination is by far the US, where 8% of total mobile students from the EU are enrolled.

Although data coverage of EU destinations is relatively good, some important issues remain, in particular when countries do not provide complete or detailed information on the country of origin of the graduates. Four main situations may occur in this respect:

- Countries that received derogations in the transmission of data: PL was granted a derogation in the transmission of information on both credit and degree mobility at ISCED levels 6-8 until 31 December 2018 (but nevertheless provided estimates for degree mobility at ISCED 6 and 7); IT has a derogation for credit mobility at ISCED 8 level till 31 December 2019 <sup>(34)</sup>.
- Countries that are not able to provide the relevant data: despite the end of the initial derogation period, FR is not able to provide information on inward degree mobility for the time being; as a consequence, no data on mobility to this country is available in the calculations <sup>(35)</sup>. As far as credit mobility is concerned, as mentioned in Section 3.1.2, no data on outward mobility for three EU countries is currently available; BE will provide credit mobility data by the end of 2018, while EE and IE did not provide any data.
- Countries that do not provide information for all applicable ISCED levels: no inward degree mobility data is available for ISCED 5 for BE and PL, and ISCED 8 for ES <sup>(36)</sup>; outward credit mobility information is not available for ISCED 5 for CZ, LU, SK <sup>(37)</sup>, and for ISCED 8 for DK, DE, EL, ES, LU and NL <sup>(38)</sup>.
- Countries that do not provide detailed information on the country of origin of inward degree mobile graduates; for each ISCED level, SI and SK provide only the total number of degree mobile graduates in the country (WRL\_X\_REP in the Eurostat dataset), without any disaggregation by country of origin (except for ISCED 5 for

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<sup>(33)</sup> These countries are India, Liechtenstein, Japan, Korea, Saudi Arabia and the United States. China, Montenegro, and Mexico have information on total mobile students, but not on how many are from the EU.

<sup>(34)</sup> See Commission Implementing Decision 2013/472/EU of 23.9.2013, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:253:0024:0026:EN:PDF>

<sup>(35)</sup> As mentioned above, student mobility data suggest that this is a very relevant data gap in the calculations, with FR being the destination of around 6% of the EU mobile students for whom information is available.

<sup>(36)</sup> For these countries, the total number of tertiary graduates (ISCED 5-8) is not produced by Eurostat, but is calculated as the sum of the available ISCED levels.

<sup>(37)</sup> In the Eurostat dataset, ISCED 5 for AT and DE is flagged as not applicable. This is because according to the countries, no well-developed credit transfer system is in place for vocational ISCED level 5 programmes; ECVET is currently under construction and work placements abroad of a minimum duration of 3 months on the stretch appear to be a rare exception. The corresponding figures are therefore estimated as being negligible. Given that ISCED 5 programmes do exist in these countries, and this level is applicable for degree mobility, for the purposes of this report the value for credit mobility for these two countries is considered to be 0 instead of not applicable.

<sup>(38)</sup> Some countries highlighted that collection of information on mobility at PhD level is sometimes out of the scope of registers on PhD graduates, signalling a need for improvement of ISCED8 coverage in future data collections.

SK)<sup>(39)</sup>. Moreover, in some countries there is a relevant share of inward degree mobile graduates with country of origin 'Not specified' (e.g. BE, DE, IT, NL, FI, SE) <sup>(40)</sup>. In both cases, the lack of precise information on country of origin prevents these graduates from being taken into account to compute outward mobility for other countries.

These gaps in the data collection – because of derogations, missing data, or missing disaggregation – result in limitations in the learning mobility estimates that can be produced <sup>(41)</sup>. When outward credit mobility information is missing for a country, the relatively straightforward consequence is that it is not possible to compute outward mobility rates for credit and for total mobility for the country itself. The consequences of missing inward degree mobility data, on the other hand, are trickier, as they go beyond the impossibility to compute inward mobility rates, and impact calculations in several ways:

- For the country for which inward degree mobility information is not available, outward mobility rates are underestimated, as a result of the missing information on inward degree mobility at the denominator, which artificially increases the number of net mobile graduates;
- For all the other countries, outward mobility rates are based on an incomplete set of information, therefore underestimating the real dimension of outward mobility. This occurs both when information on inward degree mobility for (an ISCED level within) a country is missing, and when it is not possible to identify the country of origin of inward degree mobile graduates in a country <sup>(42)</sup>. In Section 5, this report will make an attempt at estimating part of the missing components, by using proxies to infer the levels and distribution by country of origin of inward mobile graduates for FR, SI and SK.

An additional issue that needs to be highlighted, as mentioned in Section 3.1.2, is that for CZ, EL, HR and HU, it is not possible to identify credit mobile graduates who were not degree mobile within total credit mobile graduates. For the purposes of this report, in order not to exclude these countries from the calculations, total credit mobile graduates are used as a proxy <sup>(43)</sup>; this implies a potential overestimation of mobility, as it is not possible to exclude double-counting of graduates who were both credit and degree mobile.

A final remark concerns the computation of ISCED 5-8 values. Eurostat generally does not provide the total number of inward degree mobile graduates for the aggregate ISCED 5-8 category in *educ\_uoe\_mobg02* for countries where one of the ISCED levels is missing. For all these countries (i.e. BE, ES, PL), the total number of tertiary graduates is calculated as the sum of the available ISCED levels. The lack of information for some ISCED levels at the numerator produces some mismatch between the levels covered at the numerator (that can have missing information) and those at the denominator (that cover all applicable ISCED levels) <sup>(44)</sup>. This is specified in the tables produced in this

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<sup>(39)</sup> For SI, the disaggregation by country of origin is not provided for 2016 because of confidentiality rules.

<sup>(40)</sup> This could be due to several reasons. For example, NL confirmed that graduates for whom only nationality is known but not the country of upper secondary education are reported as mobile but with origin unspecified.

<sup>(41)</sup> Eurostat addresses the missing data and missing disaggregation in the annual compliance monitoring of the Commission Regulation 912/2013. Countries for which data is missing were informed about the non-compliance, asked to improve data availability and reminded about the importance of data for policy needs and Learning Mobility benchmark.

<sup>(42)</sup> In practice, the lack of a breakdown by country of origin mentioned above for SK and SI implies that the 3,000 degree mobile graduates in SK and 700 in SI cannot be 'imputed' back to the country of origin when calculating outward mobility rates, therefore potentially underestimating the figure for other countries. The same holds for the 18 thousand graduates with country of origin 'Not specified' in other EU countries.

<sup>(43)</sup> In particular, category *CM\_GRAD* – *Graduates with credit mobility of at least 3 months or 15 ECTS points* is used instead of *CM\_GRAD\_NDEG*.

<sup>(44)</sup> Following the same reasoning presented above, this produces an underestimation of inward mobility rates for ISCED 5-8 when compared to the single ISCED levels separately.

briefing, and should be considered as a consequence of the data quality issues that concern learning mobility figures provided by the countries. Moreover, no ISCED 5-8 is provided for outward credit mobility in Eurostat dataset *educ\_uoe\_mobc01*; this is also computed manually as the sum of the available ISCED levels.

### 3.2 Credit mobility by type of mobility scheme

Among outward mobile graduates with a credit mobility stay, this report provides an overview of the type of mobility scheme under which mobility took place.

The methodological manual on learning mobility specifies that data on credit mobility should cover the following types of mobility schemes:

- Credit mobility under EU programmes, i.e. programmes financed by the EU (e.g. Erasmus+);
- Credit mobility under other international/national programmes, i.e. bilateral or multilateral programmes not financed by the EU (this category includes also partnerships between universities);
- Credit mobility under other programmes; this means credit mobility neither under EU programmes nor other mobility international/national programmes. Other programmes include 'free movers'. Free movers are students who organise the recognized mobility stay on their own and such stay is credited by their home Higher Education Institution. Cases of the so-called bridge mobility (mobility outside the enrolment in a programme), which are not recognised in a student's home institution, are not taken into account and should not be reported.

The data source for this part of the analysis is the same as for the credit mobility component of the benchmark, i.e. Eurostat dataset on 'Credit mobile graduates (at least 3 months abroad) by education level, type of mobility scheme, type of mobility and sex' (Eurostat online data code *educ\_uoe\_mobc01*; last update considered: 19 July 2018). This dataset provides sub-categories that are coherent with those listed in the manual, namely (a) Credit mobility under EU programmes (i.e. Erasmus+ or other EU programmes); (b) Credit mobility under other international/national programmes; and (c) Credit mobility in other programmes. The operationalisation of the distinction between categories (b) and (c) at the country level can however lead to significant differences in how programmes are classified; for example, the UK higher education data collection from which credit mobility information is drawn uses categories that do not tally directly with the definitions above, and as a consequence all mobility schemes other than Erasmus+ are classified as 'other programmes'. While no detailed explanation is available for all the countries yet, data suggest that the categorisation of non-EU programmes can vary greatly across countries; this report therefore shows credit mobility under (b) and (c) combined.

It should be highlighted that the figures on credit mobility by type of mobility scheme refer to all credit mobile graduates, not only to those who were not degree mobile; as a consequence, they do not correspond to the credit mobility component used in the calculations for the learning mobility benchmark.

### 3.3 Inward graduate degree mobility

Inward degree mobility is computed with the same data used for outward mobility. In particular, for each host country X, the total number of inward mobile graduates is the sum of graduates in country X from any source country; this is the value of *WRL\_X\_REP* in Eurostat dataset *educ\_uoe\_mobg02*. The inward degree mobility rate for country X is then computed as follows:

$$\text{Inward degree mobility}_X = \frac{\text{inward degree mobile graduates in country X}}{\text{graduates originating in country X}} \times 100$$

Where the denominator is the same as the one used for the learning mobility benchmark and described in Section 3.1.3 <sup>(45)</sup>. For the EU28 as a whole,

$$\text{Inward degree mobility}_{EU28} = \frac{\text{inward degree mobile graduates in the EU}}{\text{graduates originating in the EU}} \times 100$$

Where the numerator is the sum of inward degree mobile graduates in the 28 EU countries, and the denominator is the same as the one for the learning mobility benchmark.

Inward degree mobility rates are computed for the individual ISCED levels, and for ISCED 5-8 overall. It is worth noting again that for the countries where one of the ISCED levels is missing (BE, ES, PL), the number of inward mobile graduates at ISCED 5-8 is computed as the sum of the available ISCED levels. Given that the denominator includes all ISCED levels applicable in the country, and therefore also those for which the numerator is not available, this produces an underestimation of inward mobility rates for ISCED 5-8 when compared to the single ISCED levels separately.

### 3.4 Areas of origin and destination of mobile graduates

A separate set of indicators provided in this report investigates the geographical distribution of mobile graduates; in particular, it provides an overview of the distribution by area of origin and destination of degree mobile graduates, and area of destination for credit mobile graduates <sup>(46)</sup>.

Starting from the origin/destination matrices for degree mobile graduates built as described in Section 3.1.1, it is possible to compute both inward degree mobility by continent of origin and outward degree mobility by area of destination.

The information on continent of origin is provided in the Eurostat dataset, which therefore allows for this type of overview. In particular, the tables will show the share of inward degree mobile graduates in each EU country and in the EU as a whole coming from EU28; Europe non-EU; Africa; Northern America; Caribbean, Central and South America; Asia; Oceania; origin not specified <sup>(47)</sup>.

When considering outward mobility, on the other hand, information is more limited, as it needs to rely on data provided by the single destination countries. As a consequence, the distribution of outward mobility will be provided distinguishing between three areas of destination only, i.e. EU28, EFTA (which includes IS, NO and CH), and rest of the world (which here is constituted by MK, TR, and the destinations covered in OECD data, that is AUS, BR, CAN, CL, CO, IL, NZ and RUS).

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<sup>(45)</sup> Eurostat publishes inward degree mobility rates in the online dataset 'Share of degree mobile graduates from abroad by education level, sex and country of origin' (online data code *educ\_uoe\_mobg03*). These are however computed using total graduates in the country of origin as the denominator, and therefore do not apply the definition provided in the UOE manual on learning mobility. This implies that Eurostat figures are lower than figures in this report for countries which host many mobile graduates but send few abroad, and vice versa.

<sup>(46)</sup> Given the very limited range of countries of origin available for credit mobility, a calculation of inward credit mobility by area of origin would not be meaningful, as it would be mostly based on graduates from EU countries.

<sup>(47)</sup> Coherently with the UOE questionnaire, the value for Europe and Asia currently included in the Eurostat website were computed considering CY and TR as Asian countries. For the purposes of this report, these totals by continent were recalculated including these countries under Europe.

Data on outward credit mobile graduates by continent of destination are provided in the Eurostat dataset on 'Credit mobile graduates (at least 3 months abroad) by education level, country of destination, type of mobility and sex' (Eurostat online data code *educ\_uoe\_mobc02*; last update considered: 19 July 2018), which provides information on the number of graduates who have had a 'credit mobility' stay of a minimum duration of three months or representing at least 15 ECTS points throughout the cycle of study. As for Section 3.2, it is worth noting that these figures refer to all credit mobile graduates, not only to those who were not degree mobile; as a consequence, they do not correspond to the credit mobility component used in the calculations for the learning mobility benchmark. The tables will show the share of outward credit mobile graduates from each EU country and from the EU as a whole having a credit mobility stay in another country in the EU28; Europe non-EU; Africa; Northern America; Caribbean, Central and South America; Asia; Oceania; destination not specified<sup>(48)</sup>. Since for DE, data could only be provided for the 10 most popular countries of destination, with all other countries included in the category 'Country of destination not specified', this country cannot be shown in the relative tables.

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<sup>(48)</sup> The Europe and Asia figures are recalculated as explained in the previous footnote.

## 4 Results

The following sections present the first estimates of mobility figures for both degree and credit mobility. Specifically, the sections are structured as follows: Section 4.1 provides an overview of the learning mobility benchmark at EU and country level, as well as an estimation of the credit and degree mobility components separately; Section 4.2 shows the type of mobility scheme under which credit mobility stays take place; Section 4.3 provides an overview of the areas of destination of mobile graduates, while Section 4.4 focuses on inward degree mobility.

### 4.1 Learning mobility benchmark

Table 1 provides the estimates of the outward graduate mobility benchmark and its components (degree and credit mobility) in 2016 for all higher education graduates (ISCED5-8) and separately by ISCED level (ED in the table for space reasons). Specifically, each number represents the percentage of mobile graduates from a country on the total population of graduates with origin in that country. Table A.1 in the Annex reports all the absolute values used in the calculation of the benchmark, including graduate degree and credit mobility, for ISCED5-8; Table A.2Table A.5 provide the same absolute values by ISCED level.

According to the first estimates of the learning mobility benchmark, in 2016 10.7% (that is more than 475 thousand graduates) of higher education graduates originating from EU countries were mobile; 3.1% (more than 138.5 thousand) were degree mobile, while 7.6% (almost 337 thousand) had a credit mobility stay. Graduate outward mobility for the EU28 as a whole therefore appears to be still far from the benchmark set for 2020; however, it should be noted that several data limitations still apply to learning mobility data, which might lead to an underestimation of the benchmark (see Section 3.1.4).

Considerable country differences emerge in the share of outward mobile graduates; LU and NL achieved the benchmark, with 84.4% and 23.2% of mobile graduates respectively, while FI is very close to reaching it (19.5%). Other four EU countries have mobility rates above 15% (DE, FR, CY and LT), while nine are below 10%. Shares are driven by different types of mobility depending on the country; among the top performers, NL and FI see a higher percentage of credit mobile than degree mobile graduates (with shares of credit mobility of 20.8 and 15.8% respectively), while in LU the degree mobility component (70.6%) predominates (possibly due to mobility to neighbouring countries). The same happens for example in SK or CY, while credit mobility is much more relevant than degree mobility in DK, DE or SE <sup>(49)</sup>.

By level of education, in general terms postgraduates are more mobile than undergraduates. While EU average mobility at the doctoral level is lower than at ISCED 7 level, different patterns emerge when considering the two types of mobility separately, with degree mobility being the highest for ISCED 8 (8.4%). At the country level, total mobility patterns by education level are quite heterogeneous, but some common trends can be identified when looking at the single mobility components. While credit mobility takes place mainly at ISCED 6 or ISCED 7 (depending on the country), the highest figures in degree mobility are generally found for ISCED 8 graduates <sup>(50)</sup>.

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<sup>(49)</sup> The absolute values presented in the Annex show that the countries with the highest number of outward degree mobile graduates are DE (above 26 thousand), FR (23 thousand) and IT (with around 12 thousand). FR presents the highest figures in terms of outward credit mobility, with more than 125 thousand graduates having a credit mobility stay of at least three months (or 15 ECTS) abroad. It is followed by ES, NL, IT and UK, with more than 20 thousand credit mobile graduates.

<sup>(50)</sup> When considering absolute numbers, the highest figures in relation to outward degree mobility appear at bachelor (ISCED 6) and master (ISCED 7) levels, with almost 58 and 64 thousand mobile graduates respectively. Although the number of graduates at ISCED 5 is considerably smaller compared to other education levels, close to 7 thousand graduates have graduated in a different country from the one where they completed upper secondary education. At PhD level, more than 10 thousand graduates from EU origin

**Table 1. Degree and credit outward mobility of graduates, 2016 (%)**

|                 | Total mobility (credit+degree) |      |      |      |      | Credit mobility   |                  |      |      |      | Degree mobility |      |      |      |      |
|-----------------|--------------------------------|------|------|------|------|-------------------|------------------|------|------|------|-----------------|------|------|------|------|
|                 | ED5-8                          | ED5  | ED6  | ED7  | ED8  | ED5-8             | ED5              | ED6  | ED7  | ED8  | ED5-8           | ED5  | ED6  | ED7  | ED8  |
| EU28            | 10.7                           | 3.7  | 9.5  | 14.7 | 9.8  | 7.6               | 2.4              | 7.1  | 10.4 | 1.4  | 3.1             | 1.4  | 2.5  | 4.3  | 8.4  |
| BE              | :                              | :    | :    | :    | :    | :                 | :                | :    | :    | :    | 2.7             | 3.4  | 1.8  | 3.8  | 10.1 |
| BG              | 8.9                            | n.a. | 8.9  | 7.8  | 10.5 | 1.5               | n.a.             | 1.6  | 1.4  | 1.9  | 7.4             | n.a. | 7.3  | 6.4  | 8.6  |
| CZ <sup>2</sup> | 8.2                            | :    | 5.4  | 11.5 | 7.0  | 6.5               | :                | 4.3  | 9.5  | 2.8  | 1.7             | 25.6 | 1.2  | 2.0  | 4.2  |
| DK              | 9.8                            | 3.7  | 9.0  | 13.6 | :    | 8.4               | 3.4              | 8.2  | 11.1 | :    | 1.4             | 0.3  | 0.8  | 2.5  | 5.0  |
| DE              | 17.8                           | 66.0 | 15.6 | 22.5 | :    | 12.9 <sup>1</sup> | 0.0 <sup>1</sup> | 12.0 | 16.2 | :    | 4.9             | 66.0 | 3.6  | 6.4  | 8.7  |
| EE              | :                              | n.a. | :    | :    | :    | :                 | n.a.             | :    | :    | :    | 8.6             | n.a. | 6.5  | 10.1 | 17.5 |
| IE              | :                              | :    | :    | :    | :    | :                 | :                | :    | :    | :    | 6.9             | 4.0  | 4.0  | 14.0 | 23.9 |
| EL <sup>2</sup> | 13.3                           | n.a. | 7.1  | 27.4 | :    | 2.2               | n.a.             | 3.1  | 0.2  | :    | 11.1            | n.a. | 4.0  | 27.2 | 27.3 |
| ES              | 9.1                            | 1.8  | 14.1 | 9.6  | :    | 7.7               | 1.6              | 13.0 | 6.9  | :    | 1.4             | 0.2  | 1.1  | 2.8  | 3.8  |
| FR              | 16.1                           | 5.3  | 13.3 | 26.7 | 12.1 | 13.2              | 4.3              | 9.3  | 23.6 | 5.1  | 2.9             | 1.0  | 4.0  | 3.1  | 7.0  |
| HR <sup>2</sup> | 6.9                            | 66.0 | 3.8  | 9.5  | 23.2 | 4.4               | 0.0              | 2.1  | 6.9  | 10.2 | 2.4             | 66.0 | 1.7  | 2.6  | 13.0 |
| IT              | 11.1                           | 16.0 | 7.6  | 15.1 | :    | 7.8               | 0.0              | 6.0  | 10.8 | :    | 3.3             | 16.0 | 1.7  | 4.3  | 15.2 |
| CY              | 15.8                           | 0.4  | 28.0 | 7.2  | 18.2 | 2.5               | 0.0              | 5.5  | 0.2  | 1.0  | 13.3            | 0.4  | 22.6 | 7.0  | 17.2 |
| LV              | 14.4                           | 6.0  | 18.0 | 14.0 | 24.4 | 6.4               | 1.1              | 9.6  | 4.5  | 8.1  | 8.0             | 4.8  | 8.4  | 9.5  | 16.3 |
| LT              | 15.6                           | n.a. | 15.0 | 14.1 | 28.9 | 7.0               | n.a.             | 7.8  | 4.8  | 9.1  | 8.6             | n.a. | 7.2  | 9.3  | 19.8 |
| LU              | 84.4                           | :    | 92.5 | 81.6 | :    | 13.8              | :                | 23.1 | 0.0  | :    | 70.6            | 14.9 | 69.4 | 81.6 | 76.6 |
| HU <sup>2</sup> | 6.2                            | 8.8  | 4.4  | 9.3  | 9.6  | 2.9               | 0.2              | 2.2  | 4.8  | 0.8  | 3.3             | 8.7  | 2.2  | 4.6  | 8.8  |
| MT              | 13.9                           | 1.2  | 12.6 | 22.8 | 68.7 | 5.4               | 0.0              | 10.4 | 2.3  | 1.0  | 8.5             | 1.2  | 2.2  | 20.4 | 67.7 |
| NL              | 23.2                           | 9.9  | 22.8 | 26.1 | :    | 20.8              | 5.5              | 21.7 | 21.3 | :    | 2.4             | 4.5  | 1.1  | 4.8  | 10.7 |
| AT              | 14.4                           | 0.2  | 20.2 | 22.2 | 29.1 | 9.8 <sup>1</sup>  | 0.0 <sup>1</sup> | 14.3 | 15.2 | 13.8 | 4.6             | 0.2  | 6.0  | 7.0  | 15.3 |
| PL              | :                              | :    | :    | :    | :    | :                 | :                | :    | :    | :    | 0.9             | 64.6 | 0.6  | 1.1  | 11.3 |
| PT              | 10.6                           | 42.3 | 9.3  | 12.7 | 12.5 | 7.7               | 0.0              | 7.8  | 8.3  | 0.7  | 2.9             | 42.3 | 1.5  | 4.4  | 11.9 |
| RO              | 6.8                            | n.a. | 6.4  | 6.2  | 14.2 | 1.9               | n.a.             | 1.9  | 1.9  | 1.5  | 4.9             | n.a. | 4.4  | 4.3  | 12.7 |
| SI              | 1.8                            | 1.1  | 1.1  | 2.8  | 1.5  | 0.0               | 0.0              | 0.0  | 0.0  | 0.0  | 1.8             | 1.1  | 1.1  | 2.8  | 1.5  |
| SK              | 12.0                           | :    | 12.8 | 11.0 | 12.8 | 0.1               | :                | 0.1  | 0.1  | 0.5  | 11.9            | 20.4 | 12.7 | 10.8 | 12.3 |
| FI              | 19.5                           | n.a. | 19.9 | 19.4 | 7.0  | 15.8              | n.a.             | 17.0 | 14.8 | 2.0  | 3.6             | n.a. | 2.9  | 4.6  | 5.0  |
| SE              | 14.4                           | 2.5  | 14.2 | 18.8 | 13.2 | 10.2              | 0.5              | 10.9 | 13.2 | 5.5  | 4.1             | 2.0  | 3.4  | 5.7  | 7.7  |
| UK              | 4.1                            | 0.4  | 6.0  | 1.8  | 4.0  | 3.4               | 0.1              | 5.5  | 0.1  | 1.8  | 0.7             | 0.3  | 0.4  | 1.7  | 2.2  |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobc01\]](#) for credit mobile graduates and [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ). [\[educ\\_uoe\\_grad01\]](#) for total graduates.

Notes: Total outward mobility rates for country X are calculated as (outward degree mobile graduates from country X + outward credit mobile graduates who were not degree mobile from country X)/graduates originating in country X. Graduates originating in country X are calculated as (Total graduates in country X - Inward degree mobile graduates from any other country to country X + Outward degree mobile graduates from country X to any other country). Credit and degree mobility are calculated considering only one component at the numerator. Outward mobility rates for the EU are calculated with similar formulas, with the sum of outward degree and/or credit mobile graduates from EU countries at the numerator, while the denominator is computed as (Number of graduates in EU countries - Inward degree mobile graduates from non-EU to EU countries + Outward degree mobile graduates from EU to non-EU countries). No information on outward credit mobility available for PL (derogation till end of 2018), BE, EE and IE. No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; this implies a potential underestimation of outward degree mobility for other countries. FR is underestimated because of missing inward degree mobility which overestimates the denominator. (n.a.) not applicable; (: ) not available; (1) no well-developed credit transfer system is in place for vocational ISCED level 5 programmes; (2) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

## 4.2 Outward credit mobility by type of mobility scheme

Among credit mobile graduates, the newly available data allow to understand the relative importance of different types of mobility schemes used by graduates to move abroad (i.e. the type of programme under which the credit mobility took place). In particular, this section focuses on two types of mobility scheme, distinguishing those graduates who used an EU programme to move abroad (e.g. Erasmus+) from those who used other types of programmes (including international/national programmes other than EU ones,

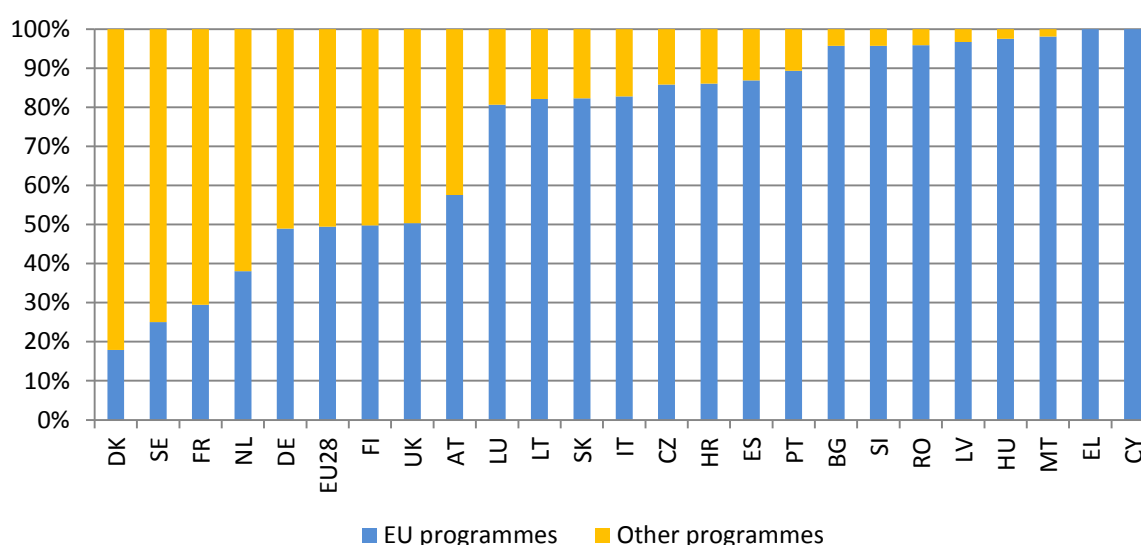
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were degree mobile. Similarly, credit mobility is the highest at ISCED 6 (with almost 167 thousand graduates) and 7 (155 thousand), while it appears to be considerably lower at PhD level (although this could be partially explained by problems in data coverage).

and other programmes <sup>(51)</sup>). As explained in Section 3.2, total values of outward credit mobile graduates presented here refer to all credit mobile graduates, not only to those who were not degree mobile.

Figure 1 shows the prevalence of different types of mobility schemes among outward credit mobility stays for the EU28 and by country for higher education overall (ISCED 5-8). At EU28 level, almost 375 thousand graduates <sup>(52)</sup> had a credit mobility stay abroad for a period of at least 3 months or to obtain at least 15 ECTS; around half of them did so under an EU programme. Similarly, in DE, AT, FI and UK around half of the graduates have used an EU programme to move abroad, while the other 50% used another type of programme. In 16 EU countries (BG, CZ, EL, ES, HR, IT, CY, LV, LT, LU, HU, MT, PT, RO, SI and SK) the vast majority of the graduates (from more than 80% in LU to 100% in EL and CY) had a mobility stay taking place under an EU programme, while in NL, FR, SE and DK, non-EU programmes are the most frequent mobility scheme (covering above 60% of credit mobile graduates).

**Figure 1. Outward credit mobility by type of mobility scheme (ISCED 5-8), 2016 (%)**



Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)].

Notes: 'Other programmes' includes the categories 'International/national programmes' and 'Other programmes' as reported by Eurostat. Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. No information available for PL (derogation till end of 2018), BE, EE and IE. Countries are ordered by increasing prevalence of EU programmes.

Table 2 shows the distribution of credit mobile graduates by type of mobility scheme for the single education levels. At ISCED 5, two thirds of credit mobile graduates (that is more than 8 thousand graduates) in the EU28 used non-EU programmes for their mobility stay. At bachelor and master level, the distribution is more equal between the two types of schemes (with EU programmes being a bit more common at ISCED 6, and non-EU ones at ISCED 7). At PhD level – where however many countries were not able to provide data – non-EU programmes appear to be way more widespread than EU ones (around 2.5 thousand of graduates against less than 500 using EU programmes).

<sup>(51)</sup> As explained in Section 3.2, the operationalisation of the distinction between 'International/national programmes' and 'Other programmes' at the country level can lead to significant differences in how programmes are classified across the EU; this section therefore shows these two categories jointly.

<sup>(52)</sup> Table A.2 in the Annex reports the absolute numbers behind the shares reported in Figure 1.



**Table 2. Outward credit mobility by type of mobility scheme and ISCED level, 2016 (%)**

|             | ISCED 5       |                               | ISCED 6       |                               | ISCED 7       |                               | ISCED 8       |                               |
|-------------|---------------|-------------------------------|---------------|-------------------------------|---------------|-------------------------------|---------------|-------------------------------|
|             | EU programmes | Other programmes <sup>1</sup> | EU programmes | Other programmes <sup>1</sup> | EU programmes | Other programmes <sup>1</sup> | EU programmes | Other programmes <sup>1</sup> |
| <b>EU28</b> | <b>33.7</b>   | <b>66.3</b>                   | <b>56.2</b>   | <b>43.8</b>                   | <b>43.7</b>   | <b>56.29</b>                  | <b>14.63</b>  | <b>85.4</b>                   |
| <b>BE</b>   | :             | :                             | :             | :                             | :             | :                             | :             | :                             |
| <b>BG</b>   | n.a.          | n.a.                          | 94.7          | 5.4                           | 98.5          | 1.5                           | 79.3          | 20.7                          |
| <b>CZ</b>   | :             | :                             | 89.1          | 10.9                          | 84.5          | 15.5                          | 52.5          | 47.5                          |
| <b>DK</b>   | 39.1          | 60.9                          | 13.3          | 86.7                          | 19.9          | 80.1                          | :             | :                             |
| <b>DE</b>   | 0.0           | 0.0                           | 49.5          | 50.5                          | 48.2          | 51.8                          | :             | :                             |
| <b>EE</b>   | :             | :                             | :             | :                             | :             | :                             | :             | :                             |
| <b>IE</b>   | :             | :                             | :             | :                             | :             | :                             | :             | :                             |
| <b>EL</b>   | n.a.          | n.a.                          | 100           | 0.0                           | 100           | 0.0                           | :             | :                             |
| <b>ES</b>   | 100           | 0.0                           | 85.4          | 14.6                          | 87.7          | 12.3                          | :             | :                             |
| <b>FR</b>   | 20.0          | 80.0                          | 42.5          | 57.5                          | 25.2          | 74.8                          | 6.2           | 93.8                          |
| <b>HR</b>   | 0.0           | 0.0                           | 85.3          | 14.7                          | 90.4          | 9.6                           | 24.7          | 75.3                          |
| <b>IT</b>   | 0.0           | 0.0                           | 85.1          | 14.9                          | 81.2          | 18.9                          | :             | :                             |
| <b>CY</b>   | 100           | 0.0                           | 100           | 0.0                           | 100           | 0.0                           | 100           | 0.0                           |
| <b>LV</b>   | 100           | 0.0                           | 96.7          | 3.3                           | 95.8          | 4.2                           | 100           | 0.0                           |
| <b>LT</b>   | n.a.          | n.a.                          | 81.4          | 18.6                          | 85.5          | 14.6                          | 70.3          | 29.8                          |
| <b>LU</b>   | :             | :                             | 81.7          | 18.3                          | 42.9          | 57.1                          | :             | :                             |
| <b>HU</b>   | 100           | 0.0                           | 98.0          | 2.0                           | 97.1          | 2.9                           | 90.0          | 10.0                          |
| <b>MT</b>   | 0.0           | 0.0                           | 97.8          | 2.2                           | 100           | 0.0                           | 100           | 0.0                           |
| <b>NL</b>   | 26.2          | 73.8                          | 39.9          | 60.1                          | 33.6          | 66.4                          | :             | :                             |
| <b>AT</b>   |               | 0.0                           | 57.9          | 42.1                          | 60.6          | 39.4                          | 14.6          | 85.4                          |
| <b>PL</b>   | :             | :                             | :             | :                             | :             | :                             | :             | :                             |
| <b>PT</b>   | 0.0           | 0.0                           | 92.0          | 8.0                           | 84.7          | 15.3                          | 70.6          | 29.4                          |
| <b>RO</b>   | n.a.          | n.a.                          | 94.8          | 5.2                           | 97.4          | 2.6                           | 100           | 0.0                           |
| <b>SI</b>   | 100           | 0.0                           | 94.9          | 5.1                           | 97.1          | 2.9                           | 100           | 0.0                           |
| <b>SK</b>   | :             | :                             | 90.2          | 9.8                           | 87.9          | 12.1                          | 56.9          | 43.1                          |
| <b>FI</b>   | n.a.          | n.a.                          | 49.0          | 51.0                          | 52.4          | 47.6                          | 11.1          | 88.9                          |
| <b>SE</b>   | 11.4          | 88.6                          | 20.3          | 79.7                          | 31.8          | 68.2                          | 4.7           | 95.4                          |
| <b>UK</b>   | 25.8          | 74.2                          | 53.2          | 46.8                          | 31.6          | 68.4                          | 4.0           | 96.1                          |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [educ\_uoe\_mobc01].

Notes: The EU value is the sum of the available countries. No information available for PL (derogation till end of 2018), BE, EE and IE. (n.a.) not applicable; (: ) not available; (1) The category includes categories 'International/national programmes' and 'Other programmes' as reported by Eurostat.

Looking at the MSs level, it is however clear how at ISCED 6 and 7, for the majority of EU countries, EU programmes are by far the most common tool for graduates to have credit mobility stays abroad, covering above 80% of credit mobile graduates in two thirds of EU countries reporting information (namely BG, CZ, EL, ES, HR, IT, CY, LV, LT, HU, MT, PT, RO, SI, SK, and LU for ISCED 6). In general, countries where EU programmes are prevalent show consistent results across ISCED levels. The highest relevance of non-EU programmes at ISCED levels 6 and 7 is found in DK, with more than 80% of credit mobile graduates participating in programmes other than European ones. A more diversified picture emerges at ISCED 8 level.

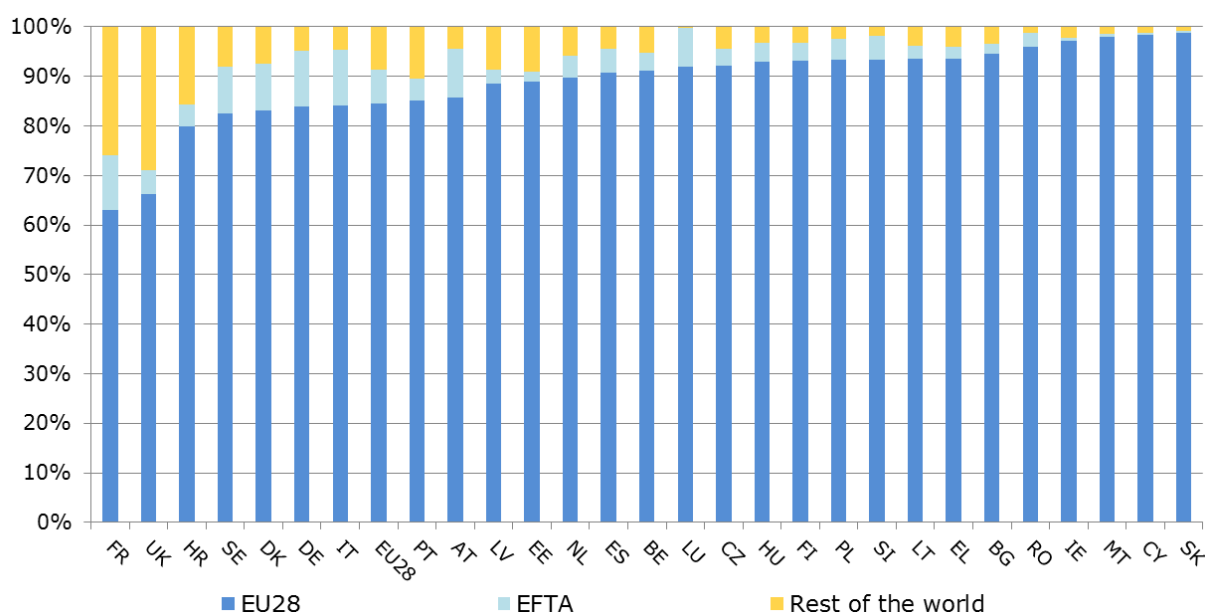
### 4.3 An overview of the areas of destination of mobile graduates

When analysing outward mobility, it is interesting to look into the distribution of graduates by area of destination. This section focuses on this aspect, showing figures separately for degree and credit mobile graduates.

#### 4.3.1 Outward degree mobility by area of destination

Figure 2 shows the distribution of outward degree mobility by area of destination for ISCED5-8 overall. The absolute values behind these shares are provided in Table A.8 in the Annex.

**Figure 2. Outward degree mobility by area of destination (ISCED5-8), 2016 (%)**



Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; this implies a potential underestimation of outward degree mobility for other countries. Countries are ordered by increasing prevalence of EU destinations.

**Table 3. Outward degree mobility by area of destination and ISCED level, 2016 (%)**

|             | ISCED 5     |            |                   | ISCED 6     |            |                   | ISCED 7     |            |                   | ISCED 8     |             |                   |
|-------------|-------------|------------|-------------------|-------------|------------|-------------------|-------------|------------|-------------------|-------------|-------------|-------------------|
|             | EU28        | EFTA       | Rest of the world | EU28        | EFTA       | Rest of the world | EU28        | EFTA       | Rest of the world | EU28        | EFTA        | Rest of the world |
| <b>EU28</b> | <b>58.8</b> | <b>0.1</b> | <b>41.1</b>       | <b>85.0</b> | <b>6.3</b> | <b>8.7</b>        | <b>88.2</b> | <b>6.8</b> | <b>5.0</b>        | <b>74.1</b> | <b>16.9</b> | <b>8.9</b>        |
| <b>BE</b>   | 65.1        | 0.0        | 34.9              | 93.2        | 2.4        | 4.4               | 92.6        | 4.6        | 2.9               | 83.1        | 6.2         | 10.8              |
| <b>BG</b>   | 91.0        | 0.0        | 9.0               | 96.4        | 0.8        | 2.8               | 93.3        | 3.3        | 3.4               | 84.8        | 7.6         | 7.6               |
| <b>CZ</b>   | 90.1        | 0.0        | 9.9               | 93.6        | 2.3        | 4.1               | 92.2        | 3.7        | 4.2               | 86.5        | 13.5        | 0.0               |
| <b>DK</b>   | 80.0        | 0.0        | 20.0              | 74.9        | 14.2       | 11.0              | 88.6        | 5.8        | 5.6               | 79.2        | 20.8        | 0.0               |
| <b>DE</b>   | 65.9        | 0.3        | 33.9              | 86.0        | 9.1        | 4.9               | 86.7        | 9.8        | 3.5               | 61.4        | 30.7        | 7.9               |
| <b>EE</b>   | 89.3        | 0.0        | 10.7              | 96.2        | 1.6        | 2.2               | 78.5        | 2.7        | 18.8              | 93.2        | 4.5         | 2.3               |
| <b>IE</b>   | 96.7        | 0.0        | 3.3               | 97.0        | 0.6        | 2.4               | 97.8        | 0.6        | 1.6               | 93.9        | 0.3         | 5.8               |
| <b>EL</b>   | 81.9        | 0.0        | 18.1              | 90.7        | 0.8        | 8.5               | 95.6        | 2.3        | 2.2               | 90.0        | 8.3         | 1.8               |
| <b>ES</b>   | 69.2        | 0.0        | 30.8              | 92.3        | 3.2        | 4.6               | 91.6        | 5.5        | 2.9               | 87.5        | 8.9         | 3.6               |
| <b>FR</b>   | 11.2        | 0.0        | 88.8              | 63.9        | 12.1       | 23.9              | 75.5        | 11.4       | 13.1              | 56.9        | 18.9        | 24.3              |
| <b>HR</b>   | 87.9        | 0.0        | 12.1              | 70.8        | 2.5        | 26.7              | 86.6        | 2.5        | 10.9              | 78.5        | 20.4        | 1.1               |
| <b>IT</b>   | 79.5        | 0.0        | 20.5              | 82.7        | 12.1       | 5.2               | 87.0        | 10.1       | 2.9               | 75.5        | 17.3        | 7.2               |
| <b>CY</b>   | 25.0        | 0.0        | 75.0              | 99.8        | 0.2        | 0.0               | 94.9        | 0.7        | 4.3               | 94.1        | 5.9         | 0.0               |
| <b>LV</b>   | 87.4        | 0.0        | 12.6              | 97.8        | 1.4        | 0.8               | 72.8        | 5.8        | 21.5              | 82.4        | 17.6        | 0.0               |
| <b>LT</b>   | 91.6        | 0.0        | 8.4               | 98.3        | 1.3        | 0.4               | 84.9        | 5.0        | 10.1              | 85.9        | 12.8        | 1.3               |
| <b>LU</b>   | 87.0        | 0.0        | 13.0              | 93.1        | 6.8        | 0.1               | 90.8        | 9.2        | 0.0               | 79.6        | 20.4        | 0.0               |
| <b>HU</b>   | 92.6        | 0.0        | 7.4               | 94.8        | 2.4        | 2.7               | 93.1        | 4.5        | 2.4               | 77.7        | 15.2        | 7.1               |
| <b>MT</b>   | 100.0       | 0.0        | 0.0               | 91.5        | 0.0        | 8.5               | 98.5        | 0.7        | 0.7               | 100.0       | 0.0         | 0.0               |
| <b>NL</b>   | 66.7        | 0.0        | 33.3              | 90.1        | 2.2        | 7.7               | 92.9        | 4.7        | 2.4               | 77.7        | 11.0        | 11.3              |
| <b>AT</b>   | 63.2        | 0.0        | 36.8              | 89.6        | 7.6        | 2.7               | 85.8        | 10.0       | 4.3               | 65.2        | 24.7        | 10.0              |
| <b>PL</b>   | 90.6        | 0.6        | 8.8               | 95.0        | 3.2        | 1.8               | 94.0        | 4.0        | 2.0               | 86.7        | 10.4        | 2.9               |
| <b>PT</b>   | 91.1        | 0.0        | 8.9               | 75.9        | 3.3        | 20.8              | 90.6        | 4.5        | 5.0               | 85.1        | 9.0         | 5.9               |
| <b>RO</b>   | 99.0        | 0.0        | 1.0               | 98.1        | 0.9        | 1.0               | 93.5        | 4.9        | 1.6               | 85.7        | 11.1        | 3.2               |
| <b>SI</b>   | 100.0       | 0.0        | 0.0               | 94.9        | 1.3        | 3.8               | 92.4        | 6.4        | 1.2               | 92.7        | 7.3         | 0.0               |
| <b>SK</b>   | 97.1        | 0.0        | 2.9               | 99.1        | 0.2        | 0.7               | 98.7        | 0.6        | 0.7               | 94.8        | 3.9         | 1.3               |
| <b>FI</b>   | 80.0        | 0.0        | 20.0              | 94.7        | 2.5        | 2.8               | 93.6        | 4.3        | 2.1               | 82.1        | 14.1        | 3.8               |
| <b>SE</b>   | 75.7        | 2.3        | 22.0              | 73.3        | 13.8       | 13.0              | 91.3        | 6.3        | 2.4               | 82.2        | 11.1        | 6.7               |
| <b>UK</b>   | 26.8        | 0.0        | 73.2              | 58.9        | 3.3        | 37.8              | 79.0        | 5.3        | 15.6              | 45.3        | 13.9        | 40.8              |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobq02](#)] for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; this implies a potential underestimation of outward degree mobility for other countries.

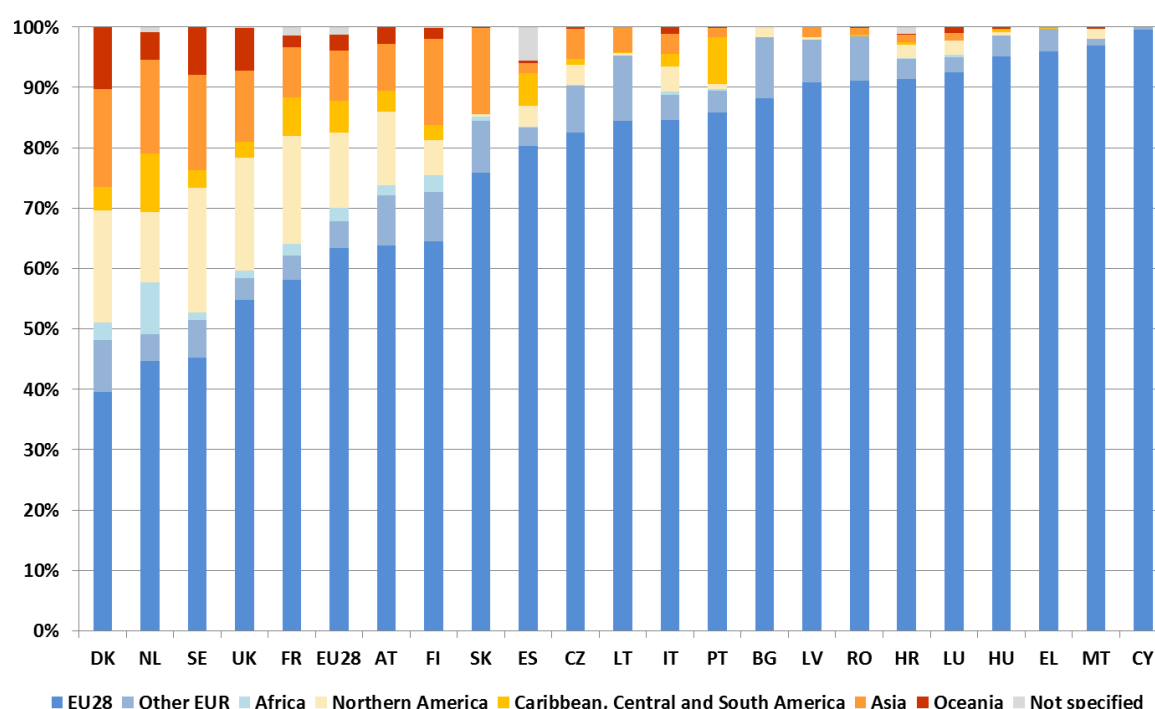
In general terms, the main destination of EU28 degree mobile graduates is by far another EU28 country. More specifically, only 15% of the almost 140 thousand degree mobile graduates with origin in one of the EU28 Member States moved to a non-EU country to get a higher education degree there. The distribution of mobile graduates by area of destination varies across countries, but in 26 out of 28 EU countries, 80% or more of outward degree mobility is directed towards another EU country. The two exceptions are FR and the UK, where one third of mobile graduates go to a non-EU (often non-European) country.

Table 3 provides an overview of the areas of destination of outward degree mobility by level of education<sup>(53)</sup>. The share of degree mobile graduates with EU origin going to other EU countries is especially high for ISCED levels 6 and 7 (with almost all countries sending more than three quarters of mobile graduates to another EU country), while the relevance of other destinations increases at PhD level (ISCED 8).

### 4.3.2 Outward credit mobility by area of destination

When considering credit mobility, as explained in Section 3.4, data allows distinguishing more destination areas than for degree mobility. This section therefore presents information on the continent of destination of credit mobile graduates, for higher education overall (Figure 3) and by education level (Figure 4). In this case, results distinguish among seven destinations: EU28; Europe non-EU; Africa, Northern America; Caribbean, Central and South America; Asia and Oceania (plus destination not specified). Outward credit mobility figures are calculated based on total credit mobile graduates, therefore including those who were also degree mobile. Table A.10-Table A.14 report the absolute values underlying these figures.

**Figure 3. Outward credit mobility by area of destination (ISCED 5-8), 2016**

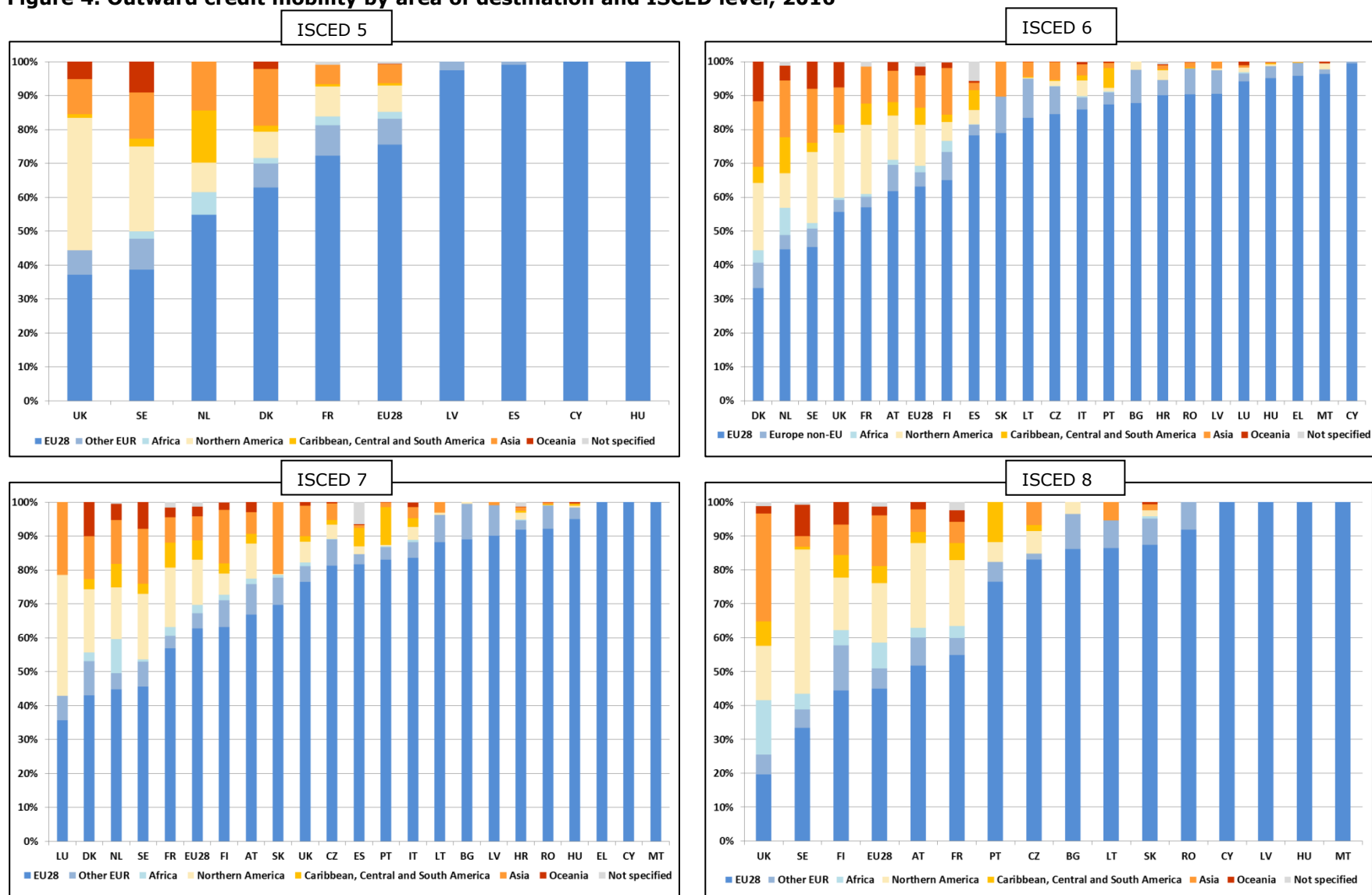


Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc02](#)].

Notes: Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. DE not reported because the country provided data only for the 10 most popular countries of destination, with all other countries included in the category 'Country of destination not specified'. (:) not available. Countries are ordered by increasing prevalence of EU destinations.

<sup>(53)</sup> Table A.9 in the Annex provides the underlying absolute values.

**Figure 4. Outward credit mobility by area of destination and ISCED level, 2016**



Source: JRC calculations based on Eurostat (UOE; 2016). See notes to Figure 3.

Almost two thirds of credit mobile graduates from EU countries had their credit mobility stay in another EU28 country, and another 5% in another European country. 12.5% chose Northern America, 8% Asia and around 5% Caribbean, Central and South America as destination. This pattern is also found at the national level: out of 22 EU countries for which data is available, 19 had more than fifty percent of the graduates moving to a partner EU28 country; for 15 of these, the share was above 70%. The exceptions are SE, DK and NL, where graduates were more equally split among different areas. For example, in SE 21% of the graduates moved to Northern America and 16% to Asia; in DK, 19% chose Northern America as destination, 16% Asia and 10% Oceania; in NL 16% went to Asia, 12% to Northern America and 10% to Caribbean, Central and South America.

Figure 4 provides information about outward credit mobility by area of destination distinguishing by education level. Graphs only include those countries with available information and they represent the percentage of credit mobile graduates from the country moving to a specific destination. The graphs show that the relevance of EU28 as destination for credit mobility stay is consistent across ISCED levels for most of the countries. At EU level, nearly two thirds of mobile graduates at bachelor and master level went to another EU country; the share decreases to less than half at PhD level, with more graduates choosing Northern America (almost 18%) and Asia (15%). Patterns across education levels are also quite coherent at country level; in half of the EU countries, more than 80% of credit mobile graduates went to another EU country at all ISCED levels. The main exceptions are again DK, NL and SE, where at all education levels most graduates had credit mobility stays out of the EU. It is particularly interesting to notice the lower share of ISCED 8 credit mobile graduates in the UK and SE who went to another EU country (20% and 33% respectively). In UK, the main destination at PhD level is Asia, with more than 30% of outward credit mobile graduates having a mobility stay there, and another 30% equally split between Africa and Northern America; the latter is by far the main destination for graduates from SE (with almost 43% of mobile graduates).

## 4.4 Inward mobility

This section looks at mobility patterns from the opposite perspective, i.e. that of the receiving country. As mentioned in Section 3.1.1, degree mobility data are provided by country of destination, and are therefore capturing inward mobility, while the opposite holds for credit mobility. As a consequence, this section focuses on degree mobility only, i.e. on individuals who moved to a country with the purpose of obtaining a higher education degree. The first part of the section shows general figures about inward degree mobility rates (calculated as the share of inward degree mobile graduates on the graduate population with origin in the country), while the second provides information about the country of origin of degree mobile graduates.

### 4.4.1 Inward degree mobility

Table 4 reports the computations of inward degree mobility for tertiary education overall as well as by single level of education <sup>(54)</sup>. In 2016, the average share of inward degree mobility in the EU was 8.6% (amounting to over 380 thousand inward mobile graduates). UK is the leading country, with more than 35% inward degree mobile graduates, followed by LU (29.2%). NL (17.2%), AT (14.7%), DK (14.6%), BE (12.9%), SE (9.7%), CZ (9.6%) and IE (8.9%) are also above the EU28 average rate. By ISCED level, figures show that for the vast majority of countries, the higher the education level, the higher the shares of inward mobility. At the EU level, 2.2% of graduates in short-cycle degrees were mobile

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<sup>(54)</sup> Table A.1 reports absolute values of inward degree mobility at ISCED 5-8 while Table A.2-Table A.5 provide the information by single ISCED level.

(almost 11 thousand graduates); the inward mobility rate increases to 5.8% at bachelor level (136 thousand), 14.1% at master level (209 thousand), and up to 22.1% among PhDs (26.6 thousand).

At ISCED 5 (which however does not apply to all countries), LU (21.4%) and DK (21%) are the countries with the highest shares of graduate degree mobility, followed by the UK (9%) and IT (6.2%). At higher ISCED levels, LU and UK have always the highest rates (together with AT at ISCED 6). At ISCED 6, again UK is the leading country with 20.3% of inward degree mobile graduates, followed by AT (18.5%), LU (13.2%), CY (11.7%) and NL (11%). At ISCED 7, the higher rates appear in UK (87.8%), LU (52.0%), NL (29.5%), AT (24.3%), DK (24.2%) and SE (20.1%). At ISCED 8, LU is a particular country at this level with a rate of inward degree mobility higher than 100%. This is due to the peculiarity of the country, which attracts more inward degree mobile PhD students than the number of PhD graduates with origin in the country. LU is followed by UK (77.7%), NL (64.7%), BE (60.1%), SE (58.1%) and DK (48.3%).

**Table 4. Inward degree mobility, 2016 (%)**

|             | ISCED 5-8  | ISCED 5    | ISCED 6    | ISCED 7     | ISCED 8     |
|-------------|------------|------------|------------|-------------|-------------|
| <b>EU28</b> | <b>8.6</b> | <b>2.2</b> | <b>5.8</b> | <b>14.1</b> | <b>22.1</b> |
| <b>BE</b>   | 12.9       | :          | 8.5        | 19.2        | 60.1        |
| <b>BG</b>   | 3.1        | n.a.       | 2.7        | 3.6         | 4.2         |
| <b>CZ</b>   | 9.6        | 2.7        | 8.9        | 10.1        | 17.1        |
| <b>DK</b>   | 14.6       | 21.0       | 7.1        | 24.2        | 48.3        |
| <b>DE</b>   | 7.1        | 0.0        | 3.3        | 11.9        | 18.4        |
| <b>EE</b>   | 6.6        | n.a.       | 4.6        | 10.5        | 12.3        |
| <b>IE</b>   | 8.9        | 3.2        | 6.1        | 17.2        | 23.8        |
| <b>EL</b>   | 1.9        | n.a.       | 2.4        | 0.8         | 1.6         |
| <b>ES</b>   | 2.9        | 0.7        | 0.8        | 8.4         | :           |
| <b>FR</b>   | :          | :          | :          | :           | :           |
| <b>HR</b>   | 0.4        | 0.0        | 0.1        | 0.6         | 3.2         |
| <b>IT</b>   | 5.1        | 6.2        | 4.9        | 5.0         | 11.4        |
| <b>CY</b>   | 8.3        | 5.5        | 11.7       | 5.5         | 8.1         |
| <b>LV</b>   | 3.6        | 1.1        | 2.7        | 7.2         | 10.5        |
| <b>LT</b>   | 2.4        | n.a.       | 1.5        | 5.1         | 2.0         |
| <b>LU</b>   | 29.2       | 21.4       | 13.2       | 52.0        | 143.8       |
| <b>HU</b>   | 5.1        | 0.5        | 3.1        | 9.6         | 7.9         |
| <b>MT</b>   | 5.6        | 1.4        | 3.2        | 13.0        | 5.1         |
| <b>NL</b>   | 17.2       | 0.0        | 11.0       | 29.5        | 64.7        |
| <b>AT</b>   | 14.7       | 0.3        | 18.5       | 24.3        | 38.0        |
| <b>PL</b>   | 1.8        | :          | 1.5        | 2.4         | :           |
| <b>PT</b>   | 4.9        | 0.3        | 2.2        | 9.0         | 21.1        |
| <b>RO</b>   | 3.6        | n.a.       | 2.4        | 5.4         | 3.8         |
| <b>SI</b>   | 2.3        | 1.4        | 1.8        | 2.9         | 2.4         |
| <b>SK</b>   | 5.0        | 0.8        | 4.3        | 5.7         | 6.3         |
| <b>FI</b>   | 8.5        | n.a.       | 6.0        | 11.5        | 32.5        |
| <b>SE</b>   | 9.7        | 0.2        | 2.0        | 20.1        | 58.1        |
| <b>UK</b>   | 35.2       | 9.0        | 20.3       | 87.8        | 77.7        |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ). [\[educ\\_uoe\\_grad01\]](#) for total graduates.

Notes: Values for ISCED 5-8 are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL.

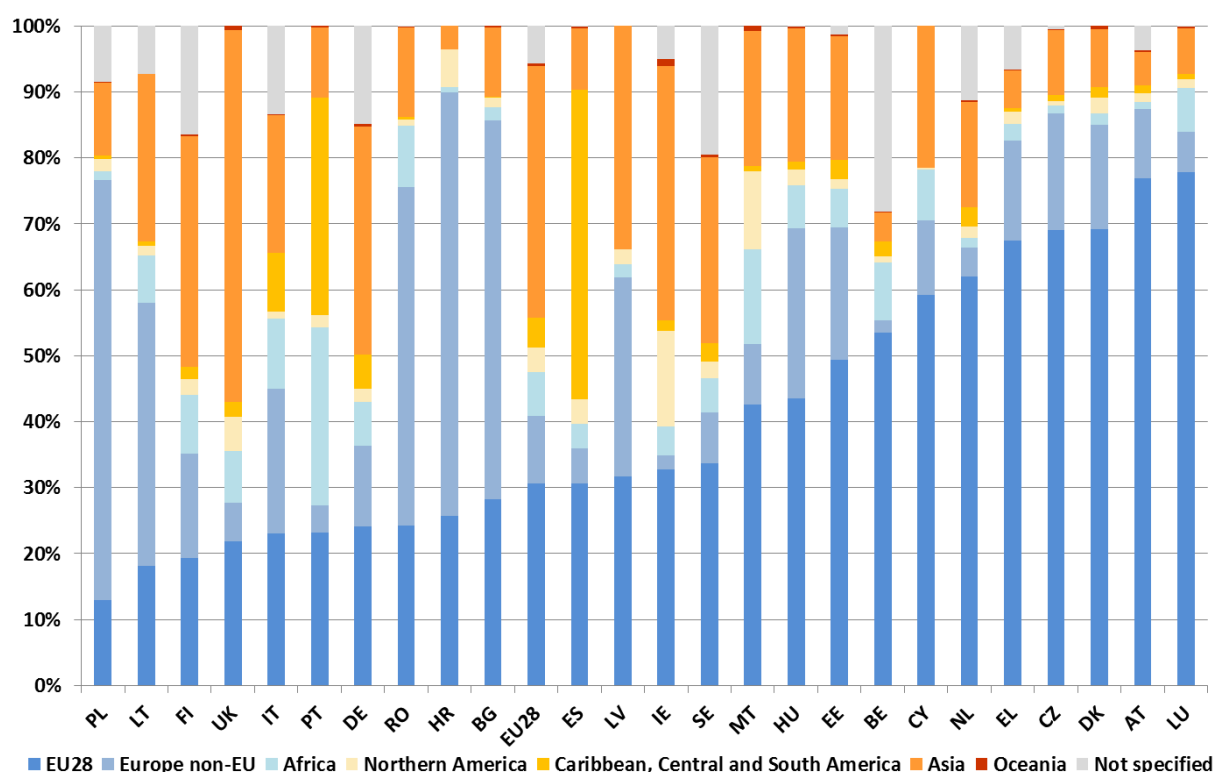
#### 4.4.2 Inward degree mobility by area of origin

This section presents the continent of origin of degree mobile graduates at total ISCED level (Figure 5) and by education level (Figure 6). In this case, results distinguish

between seven origins: EU28; Europe non-EU; Africa; Northern America; Caribbean, Central and South America; Asia and Oceania (plus origin not specified).

At EU28 level, among the 383 thousand inward mobile graduates, 30.6% moved between EU28 countries, 38.1% are from Asia, 10.2% from a European country out of the EU, 6.7% from Africa, 8.2% from America and 0.4% from Oceania. The area of origin of the graduates varies from country to country. While in CY, LU, EL, CZ, DK, AT, BE and NL the main area of origin is the EU, with more than 50% of the graduates in these countries coming from another EU28 country, in PL and HR the main origin is European but non-EU country. In ES, the clear majority of graduates are coming from Caribbean, Central and South America (47%), while in UK most of them come from Asia (56.4%). In the rest of the countries, the area of origin of inward mobile graduates is more heterogeneous. As examples, EE has 49.4% of inward graduates from another EU28 country, 20.1% from another European non-EU country, and 18.7% from Asia; in CY, on the other hand, the percentages for the same area of origin are 59.3%, 11.3% and 21.5% respectively.

**Figure 5. Inward degree mobility by area of origin (ISCED5-8), 2016**



Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; FR is underestimated because of missing inward degree mobility which overestimates the denominator. Countries are ordered by increasing prevalence of EU destinations.

This distribution of inward degree mobile graduates by area of origin could help identify the underlying factors driving degree mobility. As a matter of fact, mobility patterns between countries can be explained by several factors. A first one is geographical proximity: countries like LU or NL benefit from their central position in Europe, and traditionally receive many graduates from neighbouring countries. For example, in NL, 30% of total mobile graduates in the country come from DE. In PL, the high share of mobile graduates from European countries other than EU ones is driven by neighbouring countries such as Ukraine (with half of mobile graduates in PL) and Belarus. A second set of reasons relate to colonial and language ties: ES receives a considerable part of its



mobile graduates from the Caribbean, Central and South America (47%), while the UK is the destination of many graduates from Commonwealth countries. Finally, other reasons driving graduates to some countries include the desire of acquiring and improving knowledge of foreign languages <sup>(55)</sup>, especially the most common ones (English or French); and the reputation of the higher education system (whereby e.g. over half of mobile graduates in the UK – i.e. more than 111 thousand – are from Asia) <sup>(56)</sup>.

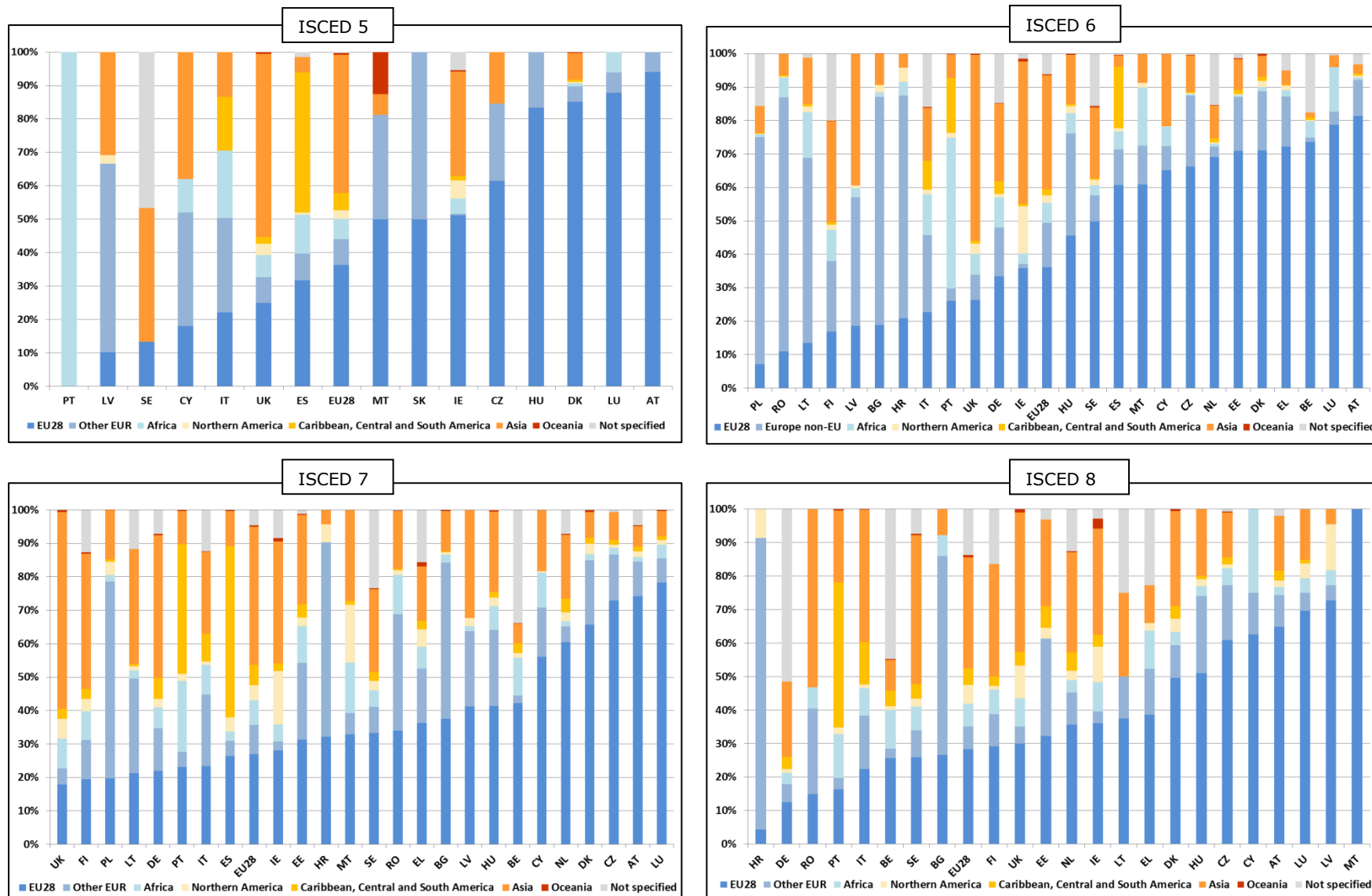
Figure 6 provides information about inward degree mobility by area of origin distinguishing by education level. Graphs only include those countries with available information and they represent the percentage of degree mobile graduates coming from a specific origin to study in a country/the EU. At ISCED 5, AT, LU, DK, HU and CZ receive mainly students from other EU28 countries, while in LV the main origin of graduates is another European (non-EU) country (56.4%). In the UK, on the other hand, the main origin at this level is Asia (54.7%). At ISCED 6, in ES, MT, CY, CZ, NL, EE, DK, EL, BE, LU and AT the majority of degree mobiles students are coming from another EU28 country, while in PL, RO, LT, BG and HR they are from other European countries. In the UK, 55.5% of the graduates at this level are from Asia. At postgraduate level (combining both ISCED 7 and 8), the main origin for the EU28 as a whole is Asia, with more than 40% of the inward degree mobile graduates coming from this continent at ISCED 7 and more than 30% at ISCED 8. In countries like CY, NL, DK, CZ, AT and LU, on the other hand, other EU countries are the main origin, with half of mobile graduates coming from this area.

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<sup>(55)</sup> See for example Rodríguez-González et al. (2011).

<sup>(56)</sup> Recent studies investigate additional factors associated with the level of attractiveness of a certain destination for mobile students. Among others, Sánchez-Barrioluengo and Flisi (2017) analyse the relationship between student inward degree mobility in the EU and several characteristics of the specific Higher Education Institution of destination and of the region where the destination university is located. This study finds a significant relationship between university characteristics and student mobility, more significant than the link with regional features. In particular, universities with higher teaching quality and with better reputation tend to have higher shares of inward degree mobility, especially at bachelor and master level; research orientation and excellence, on the other hand, are more relevant for degree mobility at PhD level.

**Figure 6. Inward degree mobility by area of origin and ISCED level, 2016**



Source: JRC calculations based on Eurostat (UOE; 2016). See notes to Figure 5.

## 5 An estimation of the missing data

As mentioned in Section 3.1.4, the lack or incompleteness of inward degree mobility data for some destination countries have repercussions on outward mobility rates for all countries: when no information is available on mobile graduates in a destination country, or on their country of origin, it is not possible to 'impute' back these graduates to their country when calculating outward mobility rates. This affects the computation of the benchmark in different ways: on one hand, it impacts the numerator of the benchmark indicator, leading to an underestimation of outward degree mobility for the other countries; on the other hand, it also affects the calculation of the number of graduates originated in a country, i.e. the denominator of the benchmark. The most likely outcome of this lack of information is an underestimation of the benchmark.

This Section tries to quantify this missing component, by using proxies to fill in the gaps in inward mobility data for FR, SI and SK. It first describes the procedure used to impute the missing data, and then shows the results obtained after filling the gaps, highlighting the main differences with the estimates presented in Section 4.1.

### 5.1 Methodology for imputing missing data

The three countries for which missing information are tentatively imputed are characterised by different data availability issues. SI and SK provide the total number of degree mobile graduates in the country, but no information on their country of origin; FR, on the other hand, provides no information at all on inward degree mobility.

For each of these countries, available information was used to infer the levels and/or distribution by country of origin of inward mobile graduates.

SI represents a rather peculiar case: as a matter of fact, for this country the disaggregation by country of origin is not provided for 2016 because of confidentiality reasons, while it is available for previous years. As a consequence, the actual number of inward mobile graduates by ISCED level provided for 2016 is used, estimating the allocation of these graduates to their country of origin using the distribution provided in UOE data for 2015.

Unlike SI, SK never provided data on the distribution by country of origin of its inward degree mobile graduates. However, such information is available from UOE data on degree mobile students (Eurostat online data code *educ\_uoe\_mobs02*). For each ISCED level<sup>(57)</sup>, inward mobile graduates reported by SK are therefore reallocated to the respective home country based on the distribution by country of origin available for students.

As for SK, information on degree mobile students and their country of origin is available in UOE data for FR; however, for this country the estimates required a further step, as no total number of mobile graduates in the country was available. For this purpose, it is necessary to rely on a data source providing information on both mobile graduates and students, allowing establishing a reliable students/graduates ratio that could be used to derive the absolute value of inward mobile graduates by ISCED level. The source that could offer such information is the European Tertiary Education Register (ETER); ETER is a database collecting information on Higher Education Institutions in Europe<sup>(58)</sup>, covering a number of institutional characteristics, including the number of degree mobile

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<sup>(57)</sup> Information on the distribution by country of origin for mobile graduates in SK is available for ISCED 5; imputations are therefore carried out only for ISCED6-8.

<sup>(58)</sup> ETER is a European Commission initiative, which aims at providing data on Higher Education Institutions in Europe. It is an Erasmus+ project fully financed by the European Commission. It is jointly managed by the Joint Research Centre and by Directorate General for Education and Culture of the European Commission, in cooperation with Eurostat and the National Statistical Authorities of the participating countries. See Lepori et al. (2017).

students and graduates <sup>(59)</sup>; the latest information available refers to academic year 2014/2015. In order to ascertain whether ETER can be a reliable source of information, a comparison was made between ETER and the official UOE data on degree mobile students for the same year. This comparison showed that ETER covers between 81 and 84% of the mobile student population in FR registered in UOE data for ISCED levels 6 and 7, and 98% for ISCED 8; on the other hand, coverage is only around 21% for ISCED 5. These results suggest that ETER can be a valuable source of information to estimate missing information for FR for ISCED 6 to 8. However, no information on mobile graduates at ISCED level 8 is available in the register; as a consequence, the imputations have been carried out only for ISCED 6 and 7. In particular, the students/graduates ratio computed on ETER data has been applied to the mobile student population registered in UOE data to derive the number of inward mobile graduates in FR; this total has then been reallocated to the countries of origin based on the distribution by home country of mobile students, as was done for SK <sup>(60)</sup>.

## 5.2 Learning mobility benchmark with imputed values

Table 5 provides the results of the learning mobility benchmark taking into account the estimations of inward degree mobile graduates in SI, SK and FR as described above. The imputations allowed reallocating around 76 thousand outward degree mobile graduates to their home countries (73 thousand of which allegedly graduated in FR). After the imputations, small yet noticeable increases are registered in the estimates for the EU learning mobility benchmark. In particular, while the benchmark computed on officially available information is 10.7%, this value increases to 11.1% when imputed values for countries with missing information are taken into account. In a similar way, the benchmark values at different ISCED levels are also slightly higher: 3.8% at ISCED 5, 9.8% at ISCED 6, 15.8% at ISCED 7 and 9.9% at ISCED 8. The highest increase is registered at ISCED 7, with more than 1 percentage point (p.p.) of difference when estimated values of the benchmark are taken into account (Table 6).

Some countries are more affected than others by the lack of information for some destinations; in particular, those who 'export' a large number of graduates to countries with no inward mobility data are the ones with the largest differences between the benchmark values with and without imputations, and therefore those where the underestimation of the official benchmark is more severe. At country level, the countries mostly affected by the imputation of missing data are CZ and LU, where the benchmark with imputed values is 1.5 and 2.1 p.p. higher than the one calculated using officially available data; the increase is smaller but still evident (at least 0.5 p.p.) in BG, EL, HR, IT, CY, PT and RO. As in the general case, ISCED 7 <sup>(61)</sup> is the level mostly affected by the imputation, where CZ, EL, CY, LU and RO (and BE for the degree mobility part) see an increase in outward mobility rates by more than 1 p.p., and BG, DE, ES, HR, IT, LV, LT, HU and PT by between 0.5 and 0.9 p.p. (see Table 6).

These increases in outward mobility rates are clearly driven by higher values of outward degree mobility, which is directly affected by the imputation. However, it should be pointed out that imputation indirectly influences also the credit mobility component. This is due to changes in the denominator used to compute outward mobility rates, which takes into consideration the net number of mobile graduates. A very peculiar case is LU,

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<sup>(59)</sup> Information on degree mobility is collected within the ETER data collection under the heading 'International/Mobile students/graduates'. The definition of mobile students and graduates follows the official UOE definitions of mobility, and is therefore in principle comparable with the UOE data used in this report. Unluckily, no disaggregation by country of origin is provided in ETER.

<sup>(60)</sup> For coherence, these figures are computed using the 2014/2015 UOE data instead of 2015/2016.

<sup>(61)</sup> It is worth reminding that imputations for FR – the country with most likely the highest number of missing inward degree mobile graduates – were carried out only for ISCED levels 6 and 7.

for which the overall increase in total outward mobility rates is the outcome of a combination of higher degree mobility rates and lower credit mobility ones.

The main conclusion that can be drawn from this section is that, although changes in benchmark values following imputations are not large enough to determine whether or not a country achieves the 20% target, they can still be quite relevant for some countries, especially for smaller ones.

**Table 5. Estimation of degree and credit outward mobility of graduates with imputed values, 2016 (%)**

|                       | Total mobility (credit+degree) |            |            |             |            | Credit mobility |            |            |             |            | Degree mobility |            |            |            |            |
|-----------------------|--------------------------------|------------|------------|-------------|------------|-----------------|------------|------------|-------------|------------|-----------------|------------|------------|------------|------------|
|                       | ED5-8                          | ED5        | ED6        | ED7         | ED8        | ED5-8           | ED5        | ED6        | ED7         | ED8        | ED5-8           | ED5        | ED6        | ED7        | ED8        |
| <b>EU28</b>           | <b>11.1</b>                    | <b>3.8</b> | <b>9.8</b> | <b>15.8</b> | <b>9.9</b> | <b>7.7</b>      | <b>2.4</b> | <b>7.1</b> | <b>10.7</b> | <b>1.4</b> | <b>3.5</b>      | <b>1.4</b> | <b>2.7</b> | <b>5.1</b> | <b>8.5</b> |
| <b>BE</b>             | :                              | :          | :          | :           | :          | :               | :          | :          | :           | :          | 3.3             | 3.4        | 2.1        | 5.1        | 10.4       |
| <b>BG</b>             | 9.5                            | n.a.       | 9.3        | 8.7         | 10.5       | 1.5             | n.a.       | 1.6        | 1.4         | 1.9        | 8.0             | n.a.       | 7.7        | 7.3        | 8.6        |
| <b>CZ<sup>2</sup></b> | 9.7                            | :          | 7.0        | 12.8        | 8.2        | 6.4             | :          | 4.2        | 9.3         | 2.8        | 3.3             | 25.6       | 2.8        | 3.5        | 5.4        |
| <b>DK</b>             | 9.8                            | 3.7        | 9.1        | 13.7        | :          | 8.4             | 3.4        | 8.2        | 11.1        | :          | 1.4             | 0.3        | 0.9        | 2.6        | 5.0        |
| <b>DE</b>             | 18.1                           | 66.2       | 15.7       | 23.2        | :          | 12.8            | 0.0        | 12.0       | 16.0        | :          | 5.3             | 66.2       | 3.7        | 7.1        | 8.8        |
| <b>EE</b>             | :                              | n.a.       | :          | :           | :          | :               | n.a.       | :          | :           | :          | 8.8             | n.a.       | 6.7        | 10.6       | 17.5       |
| <b>IE</b>             | :                              | :          | :          | :           | :          | :               | :          | :          | :           | :          | 7.1             | 4.0        | 4.1        | 14.5       | 24.0       |
| <b>EL<sup>2</sup></b> | 14.3                           | n.a.       | 7.4        | 29.9        | :          | 2.2             | n.a.       | 3.1        | 0.2         | :          | 12.1            | n.a.       | 4.3        | 29.7       | 27.4       |
| <b>ES</b>             | 9.4                            | 1.8        | 14.3       | 10.5        | :          | 7.6             | 1.6        | 13.0       | 6.8         | :          | 1.8             | 0.2        | 1.4        | 3.7        | 3.8        |
| <b>FR</b>             | 16.1                           | 5.3        | 13.3       | 26.7        | 12.1       | 13.2            | 4.3        | 9.3        | 23.6        | 5.1        | 2.9             | 1.0        | 4.0        | 3.1        | 7.0        |
| <b>HR<sup>2</sup></b> | 7.7                            | 67.6       | 4.5        | 10.4        | 24.9       | 4.4             | 0.0        | 2.1        | 6.9         | 10.0       | 3.2             | 67.6       | 2.4        | 3.5        | 14.9       |
| <b>IT</b>             | 11.6                           | 16.0       | 7.9        | 15.9        | :          | 7.8             | 0.0        | 5.9        | 10.6        | :          | 3.8             | 16.0       | 1.9        | 5.3        | 15.2       |
| <b>CY</b>             | 16.6                           | 0.4        | 28.5       | 8.5         | 18.3       | 2.5             | 0.0        | 5.4        | 0.2         | 1.0        | 14.1            | 0.4        | 23.1       | 8.3        | 17.3       |
| <b>LV</b>             | 14.7                           | 6.0        | 18.2       | 14.6        | 24.5       | 6.4             | 1.1        | 9.6        | 4.5         | 8.1        | 8.3             | 4.8        | 8.6        | 10.1       | 16.3       |
| <b>LT</b>             | 15.8                           | n.a.       | 15.1       | 14.7        | 28.9       | 7.0             | n.a.       | 7.8        | 4.7         | 9.1        | 8.9             | n.a.       | 7.3        | 9.9        | 19.8       |
| <b>LU</b>             | 86.6                           | :          | 93.2       | 86.0        | :          | 11.9            | :          | 21.1       | 0.0         | :          | 74.7            | 14.9       | 72.1       | 86.0       | 76.6       |
| <b>HU<sup>2</sup></b> | 6.5                            | 8.8        | 4.6        | 9.9         | 9.8        | 2.9             | 0.2        | 2.2        | 4.7         | 0.8        | 3.6             | 8.7        | 2.4        | 5.2        | 9.0        |
| <b>MT</b>             | 14.0                           | 1.2        | 12.7       | 23.1        | 68.7       | 5.4             | 0.0        | 10.4       | 2.3         | 1.0        | 8.6             | 1.2        | 2.3        | 20.8       | 67.7       |
| <b>NL</b>             | 23.3                           | 9.9        | 22.9       | 26.4        | :          | 20.8            | 5.5        | 21.7       | 21.2        | :          | 2.5             | 4.5        | 1.2        | 5.1        | 10.8       |
| <b>AT</b>             | 14.6                           | 0.2        | 20.4       | 22.6        | 29.3       | 9.8             | 0.0        | 14.2       | 15.1        | 13.8       | 4.8             | 0.2        | 6.2        | 7.5        | 15.6       |
| <b>PL</b>             | :                              | :          | :          | :           | :          | :               | :          | :          | :           | :          | 1.1             | 64.6       | 0.6        | 1.4        | 11.8       |
| <b>PT</b>             | 11.1                           | 42.3       | 9.5        | 13.6        | 12.5       | 7.7             | 0.0        | 7.8        | 8.2         | 0.7        | 3.4             | 42.3       | 1.7        | 5.4        | 11.9       |
| <b>RO</b>             | 7.7                            | n.a.       | 6.7        | 7.8         | 14.3       | 1.9             | n.a.       | 1.9        | 1.9         | 1.5        | 5.8             | n.a.       | 4.8        | 6.0        | 12.8       |
| <b>SI</b>             | 1.8                            | 1.1        | 1.2        | 2.8         | 1.5        | 0.0             | 0.0        | 0.0        | 0.0         | 0.0        | 1.8             | 1.1        | 1.2        | 2.8        | 1.5        |
| <b>SK</b>             | 12.2                           | :          | 12.8       | 11.2        | 12.8       | 0.1             | :          | 0.1        | 0.1         | 0.5        | 12.1            | 20.4       | 12.8       | 11.1       | 12.3       |
| <b>FI</b>             | 19.6                           | n.a.       | 19.9       | 19.7        | 7.0        | 15.8            | n.a.       | 16.9       | 14.8        | 2.0        | 3.8             | n.a.       | 3.0        | 4.9        | 5.0        |
| <b>SE</b>             | 14.5                           | 2.5        | 14.4       | 19.2        | 13.3       | 10.2            | 0.5        | 10.9       | 13.1        | 5.5        | 4.3             | 2.0        | 3.5        | 6.1        | 7.9        |
| <b>UK</b>             | 4.2                            | 0.4        | 6.0        | 2.0         | 4.0        | 3.4             | 0.1        | 5.5        | 0.1         | 1.8        | 0.8             | 0.3        | 0.5        | 1.9        | 2.2        |

Source: JRC calculations based on Eurostat (UOE; 2016) and ETER data. Online data codes: [[educ\\_uoe\\_mobc01](#)] for credit mobile graduates and [[educ\\_uoe\\_mobg02](#)] for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ). [[educ\\_uoe\\_grad01](#)] for total graduates. Imputations for FR, SI and SK based on ETER; [[educ\\_uoe\\_mobs02](#)]; [[educ\\_uoe\\_mobg02](#)].

Notes: Total outward mobility rates for country X are calculated as (outward degree mobile graduates from country X + outward credit mobile graduates who were not degree mobile from country X)/graduates originating in country X. Graduates originating in country X are calculated as (Total graduates in country X - Inward degree mobile graduates from any other country to country X + Outward degree mobile graduates from country X to any other country). Credit and degree mobility are calculated considering only one component at the numerator. Outward mobility rates for the EU are calculated with similar formulas, with the sum of outward degree and/or credit mobile graduates from EU countries at the numerator, while the denominator is computed as (Number of graduates in EU countries - Inward degree mobile graduates from non-EU to EU countries + Outward degree mobile graduates from EU to non-EU countries). No information on outward credit mobility available for PL (derogation till end of 2018), BE, EE and IE. Inward degree mobility data for FR, SI and SK estimated based on additional information; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL and FR; this implies a potential underestimation of outward degree mobility for other countries. (n.a.) not applicable; (:) not available; (1) no well-developed credit transfer system is in place for vocational ISCED level 5 programmes; (2) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

**Table 6. Difference in percentage points in the benchmark value with and without imputed values, 2016 (%)**

|                       | Total mobility (credit+degree) |            |            |            |            | Credit mobility |            |            |            |            | Degree mobility |            |            |            |            |
|-----------------------|--------------------------------|------------|------------|------------|------------|-----------------|------------|------------|------------|------------|-----------------|------------|------------|------------|------------|
|                       | ED5-8                          | ED5        | ED6        | ED7        | ED8        | ED5-8           | ED5        | ED6        | ED7        | ED8        | ED5-8           | ED5        | ED6        | ED7        | ED8        |
| <b>EU28</b>           | <b>0.5</b>                     | <b>0.0</b> | <b>0.2</b> | <b>1.1</b> | <b>0.1</b> | <b>0.1</b>      | <b>0.0</b> | <b>0.0</b> | <b>0.3</b> | <b>0.0</b> | <b>0.4</b>      | <b>0.0</b> | <b>0.2</b> | <b>0.8</b> | <b>0.1</b> |
| <b>BE</b>             |                                |            |            |            |            |                 |            |            |            |            | 0.6             | 0.0        | 0.3        | 1.3        | 0.2        |
| <b>BG</b>             | 0.6                            |            | 0.4        | 0.9        | 0.0        | 0.0             |            | 0.0        | 0.0        | 0.0        | 0.6             |            | 0.4        | 0.9        | 0.0        |
| <b>CZ<sup>2</sup></b> | 1.5                            |            | 1.6        | 1.3        | 1.2        | -0.1            |            | -0.1       | -0.1       | 0.0        | 1.6             | 0.0        | 1.7        | 1.4        | 1.2        |
| <b>DK</b>             | 0.1                            | 0.0        | 0.1        | 0.1        |            | 0.0             | 0.0        | 0.0        | 0.0        |            | 0.1             | 0.0        | 0.1        | 0.1        | 0.0        |
| <b>DE</b>             | 0.3                            | 0.2        | 0.1        | 0.6        |            | -0.1            | 0.0        | 0.0        | -0.1       |            | 0.4             | 0.2        | 0.2        | 0.8        | 0.1        |
| <b>EE</b>             |                                |            |            |            |            |                 |            |            |            |            | 0.2             |            | 0.1        | 0.5        | 0.0        |
| <b>IE</b>             |                                |            |            |            |            |                 |            |            |            |            | 0.2             | 0.0        | 0.1        | 0.5        | 0.1        |
| <b>EL<sup>2</sup></b> | 1.0                            |            | 0.3        | 2.4        |            | 0.0             |            | 0.0        | 0.0        |            | 1.0             |            | 0.3        | 2.4        | 0.1        |
| <b>ES</b>             | 0.3                            | 0.0        | 0.2        | 0.9        |            | 0.0             | 0.0        | 0.0        | -0.1       |            | 0.4             | 0.0        | 0.2        | 0.9        | 0.0        |
| <b>FR</b>             | 0.0                            | 0.0        | 0.0        | 0.0        | 0.0        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        |
| <b>HR<sup>2</sup></b> | 0.8                            | 1.6        | 0.6        | 0.8        | 1.7        | 0.0             | 0.0        | 0.0        | -0.1       | -0.2       | 0.8             | 1.6        | 0.6        | 0.9        | 1.9        |
| <b>IT</b>             | 0.5                            | 0.0        | 0.3        | 0.9        |            | 0.0             | 0.0        | 0.0        | -0.1       |            | 0.6             | 0.0        | 0.3        | 1.0        | 0.0        |
| <b>CY</b>             | 0.7                            | 0.0        | 0.5        | 1.3        | 0.1        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        | 0.8             | 0.0        | 0.5        | 1.3        | 0.1        |
| <b>LV</b>             | 0.2                            | 0.0        | 0.2        | 0.6        | 0.1        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        | 0.3             | 0.0        | 0.2        | 0.6        | 0.1        |
| <b>LT</b>             | 0.2                            |            | 0.1        | 0.6        | 0.0        | 0.0             |            | 0.0        | 0.0        | 0.0        | 0.2             |            | 0.1        | 0.6        | 0.0        |
| <b>LU</b>             | 2.1                            |            | 0.7        | 4.4        |            | -1.9            |            | -2.0       | 0.0        |            | 4.0             | 0.0        | 2.7        | 4.4        | 0.0        |
| <b>HU<sup>2</sup></b> | 0.3                            | 0.0        | 0.2        | 0.6        | 0.1        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        | 0.3             | 0.0        | 0.2        | 0.6        | 0.1        |
| <b>MT</b>             | 0.1                            | 0.0        | 0.1        | 0.3        | 0.0        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        | 0.1             | 0.0        | 0.1        | 0.3        | 0.0        |
| <b>NL</b>             | 0.1                            | 0.0        | 0.0        | 0.2        |            | 0.0             | 0.0        | 0.0        | -0.1       |            | 0.1             | 0.0        | 0.1        | 0.3        | 0.1        |
| <b>AT</b>             | 0.2                            | 0.0        | 0.2        | 0.4        | 0.2        | 0.0             | 0.0        | 0.0        | -0.1       | 0.0        | 0.2             | 0.0        | 0.2        | 0.5        | 0.3        |
| <b>PL</b>             |                                |            |            |            |            |                 |            |            |            |            | 0.1             | 0.0        | 0.0        | 0.3        | 0.4        |
| <b>PT</b>             | 0.5                            | 0.0        | 0.2        | 0.9        | 0.0        | 0.0             | 0.0        | 0.0        | -0.1       | 0.0        | 0.5             | 0.0        | 0.3        | 1.0        | 0.0        |
| <b>RO</b>             | 0.8                            |            | 0.3        | 1.7        | 0.1        | 0.0             |            | 0.0        | 0.0        | 0.0        | 0.8             |            | 0.3        | 1.7        | 0.1        |
| <b>SI</b>             | 0.0                            | 0.0        | 0.0        | 0.0        | 0.0        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        |
| <b>SK</b>             | 0.2                            |            | 0.1        | 0.3        | 0.0        | 0.0             |            | 0.0        | 0.0        | 0.0        | 0.2             | 0.0        | 0.1        | 0.3        | 0.0        |
| <b>FI</b>             | 0.1                            |            | 0.1        | 0.2        | 0.0        | 0.0             |            | 0.0        | 0.0        | 0.0        | 0.1             |            | 0.1        | 0.3        | 0.0        |
| <b>SE</b>             | 0.2                            | 0.0        | 0.1        | 0.4        | 0.2        | 0.0             | 0.0        | 0.0        | -0.1       | 0.0        | 0.2             | 0.0        | 0.1        | 0.4        | 0.2        |
| <b>UK</b>             | 0.1                            | 0.0        | 0.1        | 0.3        | 0.0        | 0.0             | 0.0        | 0.0        | 0.0        | 0.0        | 0.1             | 0.0        | 0.1        | 0.3        | 0.0        |

Source: JRC calculations based on Eurostat (UOE; 2016).

Notes: values higher than 0.5 highlighted in light green; higher than 1 in dark green; lower than -1 in light red.

## 6 Conclusions

According to the benchmark for mobility in higher education (Learning Mobility in Higher Education benchmark, LMHE), agreed by the Council of Ministers of Education, Youth, Culture & Sport during its meeting on 29 November 2011: 'by 2020, an EU average of at least 20% of higher education graduates should have had a period of higher education-related study or training (including work placements) abroad, representing a minimum of 15 ECTS credits or lasting a minimum of three months'. Data on the degree mobility component of the benchmark for graduate mobility have become progressively available starting from 2015. Based on the first data released, JRC produced in 2015 the very first estimates of the degree mobility component of the learning mobility benchmark, with information referring to the academic year 2012/2013. The first data on graduates who had a 'credit mobility' stay throughout the cycle of study were released in mid-2018, referring to the academic year 2015/2016. 2018 therefore marks the time when both degree and credit mobility components are finally available (although with limitations and caveats due to incomplete data coverage, as a result of derogations or lack of data in some countries), and the benchmark on learning mobility for tertiary education can be computed. For this reason, the current report provides the first estimates of the benchmark and of its degree and credit mobility components, for the EU as a whole and for each Member State, using data from UOE referring to the academic year 2015/2016.

The main conclusions of this report are the following. First, according to the estimates, the LMHE indicator for the reference period is 10.7% (amounting to more than 475 thousand mobile graduates in the EU). While this is very far from the 2020 target of 20%, it should be highlighted that this number might be underestimating the real phenomenon since the available data currently provide only an incomplete picture.

Second, the outward credit mobility indicator for graduates is estimated around 7.6% (almost 337 thousand graduates), while for degree mobility it is 3.1% (more than 138.5 thousand). Around half credit mobile graduates from the EU (i.e. more than 185 thousand graduates) had a mobility stay under an EU programme, while the other half did so under different types of schemes. The estimations of the benchmark by ISCED levels suggest that a higher educational level is associated with higher shares of learning mobility. Turning to inward mobility, in 2016 inward degree mobile graduates represented on average 8.6% of higher education graduates with an EU origin (amounting to 383 thousand graduates).

Third, this report also provides estimates in terms of origin and destination of mobile graduates, as well as type of scheme under which credit mobility takes place. In general terms, the main destination of mobile graduates with EU origin is another EU28 country. When considering inward degree mobile graduates, the picture is more diverse: 31% of them moved between two EU28 countries, while 38% are from Asia and 10% from a European country out of the EU.

Finally, the report also shows that the lack or incompleteness of inward degree mobility data for some destination countries have repercussions on outward mobility rates for all countries, leading to an underestimation of the learning mobility benchmark that, while small for the EU as a whole, could be particularly relevant for some countries. This suggests that even more effort is required from the countries to ensure better coverage of the data, in order to obtain more precise estimates of the benchmark.

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## Annex

**Table A.1. Mobile graduates to and from EU countries (ISCED 5-8), 2016: absolute values for benchmark calculation**

|                          | Outward degree mobile | Outward credit mobile | Inward degree mobile | Total graduates  | Net graduates (Inward -Outward) | Denominator (Tot. grad.-Inward+Outward) |
|--------------------------|-----------------------|-----------------------|----------------------|------------------|---------------------------------|---|
| <b>EU28</b>              | <b>138,676</b>        | <b>336,756</b>        | <b>383,088</b>       | <b>4,701,055</b> | <b>244,412</b>                  | <b>4,456,643</b>                        |
| <b>BE</b>                | 2,890                 | :                     | 13,918               | 119,141          | 11,028                          | 108,113                                 |
| <b>BG</b>                | 4,650                 | 959                   | 1,959                | 60,383           | -2,691                          | 63,074                                  |
| <b>CZ<sup>2</sup></b>    | 1,505                 | 5,567                 | 8,257                | 92,893           | 6,752                           | 86,141                                  |
| <b>DK</b>                | 1,020                 | 6,322                 | 11,018               | 85,290           | 9,998                           | 75,292                                  |
| <b>DE<sup>1</sup></b>    | 26,617                | 70,100                | 38,593               | 556,800          | 11,976                          | 544,824                                 |
| <b>EE</b>                | 900                   | :                     | 695                  | 10,256           | -205                            | 10,461                                  |
| <b>IE</b>                | 4,423                 | :                     | 5,718                | 65,362           | 1,295                           | 64,067                                  |
| <b>EL<sup>2</sup></b>    | 8,538                 | 1,723                 | 1,471                | 69,929           | -7,067                          | 76,996                                  |
| <b>ES</b>                | 6,160                 | 33,139                | 12,568               | 438,661          | 6,408                           | 432,253                                 |
| <b>FR</b>                | 23,209                | 104,920               | :                    | 773,550          | -23,209                         | 796,759                                 |
| <b>HR<sup>2</sup></b>    | 845                   | 1,545                 | 140                  | 34,028           | -705                            | 34,733                                  |
| <b>IT</b>                | 11,991                | 28,612                | 18,775               | 373,775          | 6,784                           | 366,991                                 |
| <b>CY</b>                | 1,179                 | 222                   | 734                  | 8,420            | -445                            | 8,865                                   |
| <b>LV</b>                | 1,326                 | 1,062                 | 590                  | 15,796           | -736                            | 16,532                                  |
| <b>LT</b>                | 2,727                 | 2,207                 | 760                  | 29,683           | -1,967                          | 31,650                                  |
| <b>LU</b>                | 2,028                 | 396                   | 839                  | 1,682            | -1,189                          | 2,871                                   |
| <b>HU<sup>2</sup></b>    | 2,193                 | 1,925                 | 3,383                | 68,110           | 1,190                           | 66,920                                  |
| <b>MT</b>                | 399                   | 255                   | 263                  | 4,576            | -136                            | 4,712                                   |
| <b>NL</b>                | 3,173                 | 27,417                | 22,640               | 151,084          | 19,467                          | 131,617                                 |
| <b>AT<sup>1</sup></b>    | 3,468                 | 7,448                 | 11,126               | 83,396           | 7,658                           | 75,738                                  |
| <b>PL</b>                | 4,441                 | :                     | 8,780                | 487,640          | 4,339                           | 483,301                                 |
| <b>PT</b>                | 2,064                 | 5,530                 | 3,527                | 73,086           | 1,463                           | 71,623                                  |
| <b>RO</b>                | 6,070                 | 2,364                 | 4,420                | 121,788          | -1,650                          | 123,438                                 |
| <b>SI</b>                | 562                   | 0                     | 696                  | 30,967           | 134                             | 30,833                                  |
| <b>SK</b>                | 7,188                 | 65                    | 3,038                | 56,280           | -4,150                          | 60,430                                  |
| <b>FI</b>                | 1,934                 | 8,468                 | 4,532                | 56,066           | 2,598                           | 53,468                                  |
| <b>SE</b>                | 3,054                 | 7,564                 | 7,182                | 78,112           | 4,128                           | 73,984                                  |
| <b>UK</b>                | 4,122                 | 18,946                | 197,466              | 754,301          | 193,344                         | 560,957                                 |
| <b>From EU to non-EU</b> | 21,608                |                       |                      |                  |                                 |   |
| <b>From non-EU to EU</b> |                       |                       | 266,020              |                  |                                 |   |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)] for credit, [[educ\\_uoe\\_mobg02](#)] for degree mobility and [[educ\\_uoe\\_grad01](#)] for total graduates.

Notes: No information on outward credit mobility available for PL (derogation till end of 2018), BE, EE and IE. No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL. Net graduates for EU28 computed as Inward degree mobile graduates from non-EU to EU countries - Outward degree mobile graduates from EU to non-EU countries. See Table 1 in main text for more information. (:) not available; (1) no well-developed credit transfer system is in place for vocational ISCED level 5 programmes; (2) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

**Table A.2. Mobile graduates to and from EU countries (ISCED 5), 2016: absolute values for benchmark calculation**

|                          | Outward degree mobile | Outward credit mobile | Inward degree mobile | Total graduates | Net graduates (Inward -Outward) | Denominator (Tot. grad.-Inward+Outward) |
|--------------------------|-----------------------|-----------------------|----------------------|-----------------|---------------------------------|---|
| <b>EU28</b>              | <b>6,767</b>          | <b>11,685</b>         | <b>10,991</b>        | <b>496,317</b>  | <b>4,224</b>                    | <b>492,093</b>                          |
| <b>BE</b>                | 106                   | :                     | :                    | 3,029           | -106                            | 3,135                                   |
| <b>BG</b>                | n,a,                  | n,a,                  | n,a,                 | n,a,            | n,a,                            | n,a,                                    |
| <b>CZ<sup>2</sup></b>    | 121                   | :                     | 13                   | 365             | -108                            | 473                                     |
| <b>DK</b>                | 25                    | 282                   | 1,743                | 10,009          | 1,718                           | 8,291                                   |
| <b>DE<sup>1</sup></b>    | 384                   | 0                     | 0                    | 198             | -384                            | 582                                     |
| <b>EE</b>                | n,a,                  | n,a,                  | n,a,                 | n,a,            | n,a,                            | n,a,                                    |
| <b>IE</b>                | 307                   | :                     | 240                  | 7,516           | -67                             | 7,583                                   |
| <b>EL<sup>2</sup></b>    | n,a,                  | n,a,                  | n,a,                 | n,a,            | n,a,                            | n,a,                                    |
| <b>ES</b>                | 201                   | 1,912                 | 831                  | 119,551         | 630                             | 118,921                                 |
| <b>FR</b>                | 2,248                 | 9,219                 | :                    | 212,837         | -2,248                          | 215,085                                 |
| <b>HR<sup>2</sup></b>    | 33                    | 0                     | 0                    | 17              | -33                             | 50                                      |
| <b>IT</b>                | 385                   | 0                     | 149                  | 2,172           | -236                            | 2,408                                   |
| <b>CY</b>                | 4                     | 0                     | 50                   | 956             | 46                              | 910                                     |
| <b>LV</b>                | 175                   | 40                    | 39                   | 3,476           | -136                            | 3,612                                   |
| <b>LT</b>                | n,a,                  | n,a,                  | n,a,                 | n,a,            | n,a,                            | n,a,                                    |
| <b>LU</b>                | 23                    | :                     | 33                   | 164             | 10                              | 154                                     |
| <b>HU<sup>2</sup></b>    | 217                   | 4                     | 12                   | 2,300           | -205                            | 2,505                                   |
| <b>MT</b>                | 14                    | 0                     | 16                   | 1,144           | 2                               | 1,142                                   |
| <b>NL</b>                | 84                    | 103                   | 0                    | 1,802           | -84                             | 1,886                                   |
| <b>AT<sup>1</sup></b>    | 38                    | 0                     | 67                   | 24,937          | 29                              | 24,908                                  |
| <b>PL</b>                | 308                   | :                     | :                    | 169             | -308                            | 477                                     |
| <b>PT</b>                | 124                   | 0                     | 1                    | 170             | -123                            | 293                                     |
| <b>RO</b>                | n,a,                  | n,a,                  | n,a,                 | n,a,            | n,a,                            | n,a,                                    |
| <b>SI</b>                | 21                    | 0                     | 26                   | 1,832           | 5                               | 1,827                                   |
| <b>SK</b>                | 209                   | :                     | 8                    | 823             | -201                            | 1,024                                   |
| <b>FI</b>                | n,a,                  | n,a,                  | n,a,                 | n,a,            | n,a,                            | n,a,                                    |
| <b>SE</b>                | 177                   | 44                    | 15                   | 8,790           | -162                            | 8,952                                   |
| <b>UK</b>                | 235                   | 81                    | 7,748                | 94,060          | 7,513                           | 86,547                                  |
| <b>From EU to non-EU</b> | 2,787                 |                       |                      |                 |                                 |   |
| <b>From non-EU to EU</b> |                       |                       | 7,011                |                 |                                 |   |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)] for credit, [[educ\\_uoe\\_mobg02](#)] for degree mobility and [[educ\\_uoe\\_grad01](#)] for total graduates.

Notes: No information on outward credit mobility available for PL (derogation till end of 2018), BE, EE and IE. No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL. Net graduates for EU28 computed as Inward degree mobile graduates from non-EU to EU countries - Outward degree mobile graduates from EU to non-EU countries. See Table 1 in main text for more information. (n.a.) not applicable; (: ) not available; (1) no well-developed credit transfer system is in place for vocational ISCED level 5 programmes; (2) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

**Table A.3. Mobile graduates to and from EU countries (ISCED 6), 2016: absolute values for benchmark calculation**

|                          | <b>Outward<br/>degree mobile</b> | <b>Outward credit<br/>mobile</b> | <b>Inward degree<br/>mobile</b> | <b>Total<br/>graduates</b> | <b>Net graduates<br/>(Inward -Outward)</b> | <b>Denominator<br/>(Tot. grad.–Inward+Outward)</b> |
|--------------------------|----------------------------------|----------------------------------|---------------------------------|----------------------------|--|--|
| <b>EU28</b>              | <b>57,954</b>                    | <b>166,556</b>                   | <b>136,441</b>                  | <b>2,435,911</b>           | <b>78,487</b>                              | <b>2,357,424</b>                                   |
| <b>BE</b>                | 1,184                            | :                                | 5,589                           | 70,060                     | 4,405                                      | 65,655   |
| <b>BG</b>                | 2,531                            | 564                              | 945                             | 33,313                     | -1,586                                     | 34,899   |
| <b>CZ<sup>1</sup></b>    | 532                              | 1,955                            | 4,074                           | 49,526                     | 3,542                                      | 45,984   |
| <b>DK</b>                | 346                              | 3,513                            | 3,028                           | 45,380                     | 2,682                                      | 42,698   |
| <b>DE</b>                | 11,638                           | 39,000                           | 10,788                          | 324,315                    | -850                                       | 325,165  |
| <b>EE</b>                | 446                              | :                                | 316                             | 6,681                      | -130                                       | 6,811  |
| <b>IE</b>                | 1,544                            | :                                | 2,398                           | 39,939                     | 854  | 39,085   |
| <b>EL<sup>1</sup></b>    | 2,150                            | 1,681                            | 1,273                           | 53,123                     | -877                                       | 54,000   |
| <b>ES</b>                | 1,976                            | 22,771                           | 1,397                           | 174,629                    | -579                                       | 175,208  |
| <b>FR</b>                | 10,801                           | 25,324                           | :                               | 260,586                    | -10,801                                    | 271,387  |
| <b>HR<sup>1</sup></b>    | 315                              | 388                              | 24                              | 18,027                     | -291                                       | 18,318   |
| <b>IT</b>                | 3,314                            | 11,794                           | 9,611                           | 204,260                    | 6,297                                      | 197,963  |
| <b>CY</b>                | 881                              | 213                              | 457                             | 3,481                      | -424                                       | 3,905  |
| <b>LV</b>                | 717                              | 815                              | 226                             | 8,002                      | -491                                       | 8,493  |
| <b>LT</b>                | 1,638                            | 1,776                            | 331                             | 21,425                     | -1,307                                     | 22,732   |
| <b>LU</b>                | 1,191                            | 396                              | 226                             | 750                        | -965                                       | 1,715  |
| <b>HU<sup>1</sup></b>    | 947                              | 955                              | 1,338                           | 43,423                     | 391  | 43,032   |
| <b>MT</b>                | 47                               | 223                              | 69                              | 2,166                      | 22   | 2,144  |
| <b>NL</b>                | 1,005                            | 19,645                           | 9,924                           | 99,426                     | 8,919                                      | 90,507   |
| <b>AT</b>                | 1,599                            | 3,804                            | 4,951                           | 30,050                     | 3,352                                      | 26,698   |
| <b>PL</b>                | 1,808                            | :                                | 4,793                           | 316,953                    | 2,985                                      | 313,968  |
| <b>PT</b>                | 676                              | 3,602                            | 1,005                           | 46,550                     | 329  | 46,221   |
| <b>RO</b>                | 3,271                            | 1,430                            | 1,800                           | 72,147                     | -1,471                                     | 73,618   |
| <b>SI</b>                | 157                              | 0                                | 243                             | 13,680                     | 86   | 13,594   |
| <b>SK</b>                | 3,499                            | 16                               | 1,195                           | 25,230                     | -2,304                                     | 27,534   |
| <b>FI</b>                | 1,018                            | 5,949                            | 2,097                           | 36,151                     | 1,079                                      | 35,072   |
| <b>SE</b>                | 1,265                            | 4,071                            | 738                             | 36,920                     | -527                                       | 37,447   |
| <b>UK</b>                | 1,459                            | 18,447                           | 67,605                          | 399,718                    | 66,146                                     | 333,572  |
| <b>From EU to non-EU</b> | 8,687                            |                                  |                                 |                            |  |  |
| <b>From non-EU to EU</b> |                                  |                                  | 87,174                          |                            |  |  |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)] for credit, [[educ\\_uoe\\_mobg02](#)] for degree mobility and [[educ\\_uoe\\_grad01](#)] for total graduates.

Notes: No information on outward credit mobility available for PL (derogation till end of 2018), BE, EE and IE. No inward degree mobility data available for FR, and for SI and SK by country of origin. Net graduates for EU28 computed as Inward degree mobile graduates from non-EU to EU countries - Outward degree mobile graduates from EU to non-EU countries. See Table 1 in main text for more information. (:) not available; (1) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

**Table A.4. Mobile graduates to and from EU countries (ISCED 7), 2016: absolute values for benchmark calculation**

|                          | Outward degree mobile | Outward credit mobile | Inward degree mobile | Total graduates  | Net graduates (Inward -Outward) | Denominator (Tot. grad.-Inward+Outward) |
|--------------------------|-----------------------|-----------------------|----------------------|------------------|---------------------------------|---|
| <b>EU28</b>              | <b>63,846</b>         | <b>154,600</b>        | <b>209,053</b>       | <b>1,631,966</b> | <b>145,207</b>                  | <b>1,486,759</b>                        |
| <b>BE</b>                | 1,405                 | :                     | 7,171                | 43,162           | 5,766                           | 37,396                                  |
| <b>BG</b>                | 1,697                 | 366                   | 950                  | 25,606           | -747                            | 26,353                                  |
| <b>CZ<sup>1</sup></b>    | 766                   | 3,553                 | 3,809                | 40,623           | 3,043                           | 37,580                                  |
| <b>DK</b>                | 572                   | 2,527                 | 5,506                | 27,703           | 4,934                           | 22,769                                  |
| <b>DE</b>                | 12,269                | 31,100                | 22,882               | 202,984          | 10,613                          | 192,371                                 |
| <b>EE</b>                | 335                   | :                     | 348                  | 3,336            | 13                              | 3,323                                   |
| <b>IE</b>                | 2,230                 | :                     | 2,739                | 16,478           | 509                             | 15,969                                  |
| <b>EL<sup>1</sup></b>    | 5,485                 | 42                    | 154                  | 14,803           | -5,331                          | 20,134                                  |
| <b>ES</b>                | 3,401                 | 8,456                 | 10,340               | 129,787          | 6,939                           | 122,848                                 |
| <b>FR</b>                | 9,126                 | 69,621                | :                    | 286,340          | -9,126                          | 295,466                                 |
| <b>HR<sup>1</sup></b>    | 404                   | 1,084                 | 93                   | 15,338           | -311                            | 15,649                                  |
| <b>IT</b>                | 6,744                 | 16,818                | 7,855                | 157,540          | 1,111                           | 156,429                                 |
| <b>CY</b>                | 277                   | 8                     | 219                  | 3,893            | -58                             | 3,951                                   |
| <b>LV</b>                | 400                   | 190                   | 303                  | 4,121            | -97                             | 4,218                                   |
| <b>LT</b>                | 773                   | 395                   | 421                  | 7,934            | -352                            | 8,286                                   |
| <b>LU</b>                | 765                   | 0                     | 488                  | 661              | -277                            | 938                                     |
| <b>HU<sup>1</sup></b>    | 918                   | 956                   | 1,933                | 21,132           | 1,015                           | 20,117                                  |
| <b>MT</b>                | 271                   | 31                    | 173                  | 1,229            | -98                             | 1,327                                   |
| <b>NL</b>                | 1,739                 | 7,669                 | 10,630               | 44,889           | 8,891                           | 35,998                                  |
| <b>AT</b>                | 1,552                 | 3,392                 | 5,415                | 26,170           | 3,863                           | 22,307                                  |
| <b>PL</b>                | 1,844                 | :                     | 3,987                | 166,754          | 2,143                           | 164,611                                 |
| <b>PT</b>                | 1,009                 | 1,914                 | 2,069                | 24,022           | 1,060                           | 22,962                                  |
| <b>RO</b>                | 1,995                 | 897                   | 2,526                | 47,381           | 531                             | 46,850                                  |
| <b>SI</b>                | 329                   | 0                     | 338                  | 11,692           | 9                               | 11,683                                  |
| <b>SK</b>                | 3,249                 | 39                    | 1,716                | 28,456           | -1,533                          | 29,989                                  |
| <b>FI</b>                | 768                   | 2,487                 | 1,923                | 17,906           | 1,155                           | 16,751                                  |
| <b>SE</b>                | 1,432                 | 3,320                 | 5,065                | 28,869           | 3,633                           | 25,236                                  |
| <b>UK</b>                | 2,090                 | 130                   | 110,000              | 233,157          | 107,910                         | 125,247                                 |
| <b>From EU to non-EU</b> | 7,518                 |                       |                      |                  |                                 |   |
| <b>From non-EU to EU</b> |                       |                       | 152,725              |                  |                                 |   |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)] for credit, [[educ\\_uoe\\_mobg02](#)] for degree mobility and [[educ\\_uoe\\_grad01](#)] for total graduates.

Notes: No information on outward credit mobility available for PL (derogation till end of 2018), BE, EE and IE. No inward degree mobility data available for FR, and for SI and SK by country of origin. Net graduates for EU28 computed as Inward degree mobile graduates from non-EU to EU countries - Outward degree mobile graduates from EU to non-EU countries. See Table 1 in main text for more information. (: ) not available; (1) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

**Table A.5. Mobile graduates to and from EU countries (ISCED 8), 2016: absolute values for benchmark calculation**

|                          | Outward degree mobile | Outward credit mobile | Inward degree mobile | Total graduates | Net graduates (Inward -Outward) | Denominator (Tot. grad.-Inward+Outward) |
|--------------------------|-----------------------|-----------------------|----------------------|-----------------|---------------------------------|---|
| <b>EU28</b>              | <b>10,114</b>         | <b>1,708</b>          | <b>26,603</b>        | <b>136,861</b>  | <b>16,489</b>                   | <b>120,372</b>                          |
| <b>BE</b>                | 195                   | :                     | 1,158                | 2,890           | 963                             | 1,927                                   |
| <b>BG</b>                | 132                   | 29                    | 64                   | 1,464           | -68                             | 1,532                                   |
| <b>CZ<sup>1</sup></b>    | 89                    | 59                    | 361                  | 2,379           | 272                             | 2,107                                   |
| <b>DK</b>                | 77                    | :                     | 741                  | 2,198           | 664                             | 1,534                                   |
| <b>DE</b>                | 2,326                 | :                     | 4,923                | 29,303          | 2,597                           | 26,706                                  |
| <b>EE</b>                | 44                    | :                     | 31                   | 239             | -13                             | 252                                     |
| <b>IE</b>                | 342                   | :                     | 341                  | 1,429           | -1                              | 1,430                                   |
| <b>EL<sup>1</sup></b>    | 737                   | :                     | 44                   | 2,003           | -693                            | 2,696                                   |
| <b>ES</b>                | 582                   | :                     | :                    | 14,694          | -582                            | 15,276                                  |
| <b>FR</b>                | 1,034                 | 756                   | :                    | 13,787          | -1,034                          | 14,821                                  |
| <b>HR<sup>1</sup></b>    | 93                    | 73                    | 23                   | 646             | -70                             | 716                                     |
| <b>IT</b>                | 1,549                 | :                     | 1,160                | 9,803           | -389                            | 10,192                                  |
| <b>CY</b>                | 17                    | 1                     | 8                    | 90              | -9                              | 99                                      |
| <b>LV</b>                | 34                    | 17                    | 22                   | 197             | -12                             | 209                                     |
| <b>LT</b>                | 78                    | 36                    | 8                    | 324             | -70                             | 394                                     |
| <b>LU</b>                | 49                    | :                     | 92                   | 107             | 43                              | 64                                      |
| <b>HU<sup>1</sup></b>    | 112                   | 10                    | 100                  | 1,255           | -12                             | 1,267                                   |
| <b>MT</b>                | 67                    | 1                     | 5                    | 37              | -62                             | 99                                      |
| <b>NL</b>                | 345                   | :                     | 2,086                | 4,967           | 1,741                           | 3,226                                   |
| <b>AT</b>                | 279                   | 252                   | 693                  | 2,239           | 414                             | 1,825                                   |
| <b>PL</b>                | 481                   | :                     | :                    | 3,764           | -481                            | 4,245                                   |
| <b>PT</b>                | 255                   | 14                    | 452                  | 2,344           | 197                             | 2,147                                   |
| <b>RO</b>                | 315                   | 37                    | 94                   | 2,260           | -221                            | 2,481                                   |
| <b>SI</b>                | 55                    | 0                     | 89                   | 3,763           | 34                              | 3,729                                   |
| <b>SK</b>                | 231                   | 10                    | 119                  | 1,771           | -112                            | 1,883                                   |
| <b>FI</b>                | 78                    | 32                    | 512                  | 2,009           | 434                             | 1,575                                   |
| <b>SE</b>                | 180                   | 129                   | 1,364                | 3,533           | 1,184                           | 2,349                                   |
| <b>UK</b>                | 338                   | 288                   | 12,113               | 27,366          | 11,775                          | 15,591                                  |
| <b>From EU to non-EU</b> | 2,616                 |                       |                      |                 |                                 |   |
| <b>From non-EU to EU</b> |                       |                       | 19,105               |                 |                                 |   |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)] for credit, [[educ\\_uoe\\_mobg02](#)] for degree mobility and [[educ\\_uoe\\_grad01](#)] for total graduates.

Notes: No information on outward credit mobility available for PL (derogation till end of 2018), BE, EE and IE. No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 8 for ES and PL. Net graduates for EU28 computed as Inward degree mobile graduates from non-EU to EU countries - Outward degree mobile graduates from EU to non-EU countries. See Table 1 in main text for more information. (: ) not available; (1) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

**Table A.6. Outward credit mobility by type of mobility scheme (ISCED 5-8), 2016: absolute values**

| EU programmes |                | International/national programmes and<br>Other programmes | Total          |
|---------------|----------------|---|----------------|
| <b>EU28</b>   | <b>185,134</b> | <b>189,449</b>  | <b>374,583</b> |
| <b>BE</b>     | :              | :   | :              |
| <b>BG</b>     | 975            | 44  | 1,019          |
| <b>CZ</b>     | 4,776          | 791   | 5,567          |
| <b>DK</b>     | 1,474          | 6,745   | 8,219          |
| <b>DE</b>     | 34,300         | 35,800  | 70,100         |
| <b>EE</b>     | :              | :   | :              |
| <b>IE</b>     | :              | :   | :              |
| <b>EL</b>     | 1,723          | 0   | 1,723          |
| <b>ES</b>     | 29,083         | 4,405   | 33,488         |
| <b>FR</b>     | 36,842         | 88,256  | 125,098        |
| <b>HR</b>     | 1,329          | 216   | 1,545          |
| <b>IT</b>     | 23,680         | 4,932   | 28,612         |
| <b>CY</b>     | 236            | 0   | 236            |
| <b>LV</b>     | 1,086          | 37  | 1,123          |
| <b>LT</b>     | 1,924          | 420   | 2,344          |
| <b>LU</b>     | 399            | 96  | 495            |
| <b>HU</b>     | 1,877          | 48  | 1,925          |
| <b>MT</b>     | 250            | 5   | 255            |
| <b>NL</b>     | 12,401         | 20,216  | 32,617         |
| <b>AT</b>     | 5,438          | 4,009   | 9,447          |
| <b>PL</b>     | :              | :   | :              |
| <b>PT</b>     | 5,099          | 610   | 5,709          |
| <b>RO</b>     | 2,267          | 97  | 2,364          |
| <b>SI</b>     | 399            | 18  | 417            |
| <b>SK</b>     | 683            | 147   | 830            |
| <b>FI</b>     | 4,681          | 4,719   | 9,400          |
| <b>SE</b>     | 1,895          | 5,669   | 7,564          |
| <b>UK</b>     | 12,317         | 12,169  | 24,486         |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)].

Notes: Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. No information available for PL (derogation till end of 2018), BE, EE and IE. (: ) not available.

**Table A.7. Outward credit mobility by type of mobility scheme and ISCED level, 2016: absolute values**

|             | ISCED 5       |                               |               | ISCED 6        |                               |                | ISCED 7       |                               |                | ISCED 8       |                               |              |
|-------------|---------------|-------------------------------|---------------|----------------|-------------------------------|----------------|---------------|-------------------------------|----------------|---------------|-------------------------------|--------------|
|             | EU programmes | Other programmes <sup>1</sup> | Total         | EU programmes  | Other programmes <sup>1</sup> | Total          | EU programmes | Other programmes <sup>1</sup> | Total          | EU programmes | Other programmes <sup>1</sup> | Total        |
| <b>EU28</b> | <b>4,138</b>  | <b>8,154</b>                  | <b>12,292</b> | <b>105,789</b> | <b>82,435</b>                 | <b>188,224</b> | <b>74,767</b> | <b>96,293</b>                 | <b>171,060</b> | <b>440</b>    | <b>2,567</b>                  | <b>3,007</b> |
| <b>BE</b>   | :             | :                             | :             | :              | :                             | :              | :             | :                             | :              | :             | :                             | :            |
| <b>BG</b>   | n.a.          | n.a.                          | n.a.          | 566            | 32                            | 598            | 386           | 6                             | 392            | 23            | 6                             | 29           |
| <b>CZ</b>   | :             | :                             | :             | 1,742          | 213                           | 1,955          | 3,003         | 550                           | 3,553          | 31            | 28                            | 59           |
| <b>DK</b>   | 216           | 336                           | 552           | 546            | 3,546                         | 4,092          | 712           | 2,863                         | 3,575          | :             | :                             | :            |
| <b>DE</b>   | 0             | 0                             | 0             | 19,300         | 19,700                        | 39,000         | 15,000        | 16,100                        | 31,100         | :             | :                             | :            |
| <b>EE</b>   | n.a.          | n.a.                          | n.a.          | :              | :                             | :              | :             | :                             | :              | :             | :                             | :            |
| <b>IE</b>   | :             | :                             | :             | :              | :                             | :              | :             | :                             | :              | :             | :                             | :            |
| <b>EL</b>   | n.a.          | n.a.                          | n.a.          | 1,681          | 0                             | 1,681          | 42            | 0                             | 42             | :             | :                             | :            |
| <b>ES</b>   | 1,912         | 0                             | 1,912         | 19,586         | 3,337                         | 22,923         | 7,585         | 1,068                         | 8,653          | :             | :                             | :            |
| <b>FR</b>   | 1,904         | 7,631                         | 9,535         | 14,718         | 19,883                        | 34,601         | 20,160        | 59,828                        | 79,988         | 60            | 914                           | 974          |
| <b>HR</b>   | 0             | 0                             | 0             | 331            | 57                            | 388            | 980           | 104                           | 1,084          | 18            | 55                            | 73           |
| <b>IT</b>   | 0             | 0                             | 0             | 10,032         | 1,762                         | 11,794         | 13,648        | 3,170                         | 16,818         | :             | :                             | :            |
| <b>CY</b>   | 2             | 0                             | 2             | 224            | 0                             | 224            | 8             | 0                             | 8              | 2             | 0                             | 2            |
| <b>LV</b>   | 40            | 0                             | 40            | 821            | 28                            | 849            | 204           | 9                             | 213            | 21            | 0                             | 21           |
| <b>LT</b>   | n.a.          | n.a.                          | n.a.          | 1,487          | 339                           | 1,826          | 411           | 70                            | 481            | 26            | 11                            | 37           |
| <b>LU</b>   | :             | :                             | :             | 393            | 88                            | 481            | 6             | 8                             | 14             | :             | :                             | :            |
| <b>HU</b>   | 4             | 0                             | 4             | 936            | 19                            | 955            | 928           | 28                            | 956            | 9             | 1                             | 10           |
| <b>MT</b>   | 0             | 0                             | 0             | 218            | 5                             | 223            | 31            | 0                             | 31             | 1             | 0                             | 1            |
| <b>NL</b>   | 27            | 76                            | 103           | 9,171          | 13,815                        | 22,986         | 3,203         | 6,325                         | 9,528          | :             | :                             | :            |
| <b>AT</b>   | 0             | 0                             | 0             | 2,752          | 2,003                         | 4,755          | 2,636         | 1,714                         | 4,350          | 50            | 292                           | 342          |
| <b>PL</b>   | :             | :                             | :             | :              | :                             | :              | :             | :                             | :              | :             | :                             | :            |
| <b>PT</b>   | 0             | 0                             | 0             | 3,365          | 293                           | 3,658          | 1,722         | 312                           | 2,034          | 12            | 5                             | 17           |
| <b>RO</b>   | n.a.          | n.a.                          | n.a.          | 1,356          | 74                            | 1,430          | 874           | 23                            | 897            | 37            | 0                             | 37           |
| <b>SI</b>   | 3             | 0                             | 3             | 259            | 14                            | 273            | 135           | 4                             | 139            | 2             | 0                             | 2            |
| <b>SK</b>   | :             | :                             | :             | 202            | 22                            | 224            | 386           | 53                            | 439            | 95            | 72                            | 167          |
| <b>FI</b>   | n.a.          | n.a.                          | n.a.          | 3,260          | 3,391                         | 6,651          | 1,416         | 1,288                         | 2,704          | 5             | 40                            | 45           |
| <b>SE</b>   | 5             | 39                            | 44            | 827            | 3,244                         | 4,071          | 1,057         | 2,263                         | 3,320          | 6             | 123                           | 129          |
| <b>UK</b>   | 25            | 72                            | 97            | 12,016         | 10,570                        | 22,586         | 234           | 507                           | 741            | 42            | 1,020                         | 1,062        |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc01](#)].

Notes: The EU value is the sum of the available countries. No information available for PL (derogation till end of 2018), BE, EE and IE. (n.a.) not applicable; (: ) not available; (1) The category includes also data for international/national programmes.

**Table A.8. Outward degree mobility by area of destination (ISCED5-8), 2016: absolute values**

|             | <b>EU28</b>    | <b>EFTA</b>  | <b>Rest of the world</b> | <b>Total</b>   |
|-------------|----------------|--------------|--------------------------|----------------|
| <b>EU28</b> | <b>117,068</b> | <b>9,703</b> | <b>11,905</b>            | <b>138,676</b> |
| <b>BE</b>   | 2,635          | 105          | 150                      | 2,890          |
| <b>BG</b>   | 4,400          | 87           | 163                      | 4,650          |
| <b>CZ</b>   | 1,387          | 52           | 66                       | 1,505          |
| <b>DK</b>   | 847            | 98           | 75                       | 1,020          |
| <b>DE</b>   | 22,333         | 2,980        | 1,304                    | 26,617         |
| <b>EE</b>   | 800            | 18           | 82                       | 900            |
| <b>IE</b>   | 4,297          | 23           | 103                      | 4,423          |
| <b>EL</b>   | 7,992          | 203          | 343                      | 8,538          |
| <b>ES</b>   | 5,588          | 302          | 270                      | 6,160          |
| <b>FR</b>   | 14,633         | 2,543        | 6,033                    | 23,209         |
| <b>HR</b>   | 675            | 37           | 133                      | 845            |
| <b>IT</b>   | 10,085         | 1,348        | 558                      | 11,991         |
| <b>CY</b>   | 1,159          | 5            | 15                       | 1,179          |
| <b>LV</b>   | 1,173          | 39           | 114                      | 1,326          |
| <b>LT</b>   | 2,551          | 71           | 105                      | 2,727          |
| <b>LU</b>   | 1,863          | 161          | 4                        | 2,028          |
| <b>HU</b>   | 2,040          | 81           | 72                       | 2,193          |
| <b>MT</b>   | 391            | 2            | 6                        | 399            |
| <b>NL</b>   | 2,845          | 142          | 186                      | 3,173          |
| <b>AT</b>   | 2,970          | 346          | 152                      | 3,468          |
| <b>PL</b>   | 4,148          | 183          | 110                      | 4,441          |
| <b>PT</b>   | 1,757          | 90           | 217                      | 2,064          |
| <b>RO</b>   | 5,830          | 162          | 78                       | 6,070          |
| <b>SI</b>   | 525            | 27           | 10                       | 562            |
| <b>SK</b>   | 7,097          | 35           | 56                       | 7,188          |
| <b>FI</b>   | 1,803          | 69           | 62                       | 1,934          |
| <b>SE</b>   | 2,517          | 288          | 249                      | 3,054          |
| <b>UK</b>   | 2,727          | 206          | 1,189                    | 4,122          |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobg02](#)] for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; this implies a potential underestimation of outward degree mobility for other countries.



**Table A.9. Outward degree mobility by area of destination and ISCED level, 2016: absolute values**

|             | ISCED 5      |          |                   |              | ISCED 6       |              |                   |               | ISCED 7       |              |                   |               | ISCED 8      |              |                   |               |
|-------------|--------------|----------|-------------------|--------------|---------------|--------------|-------------------|---------------|---------------|--------------|-------------------|---------------|--------------|--------------|-------------------|---------------|
|             | EU28         | EFTA     | Rest of the world | Total        | EU28          | EFTA         | Rest of the world | Total         | EU28          | EFTA         | Rest of the world | Total         | EU28         | EFTA         | Rest of the world | Total         |
| <b>EU28</b> | <b>3,980</b> | <b>7</b> | <b>2,780</b>      | <b>6,767</b> | <b>49,267</b> | <b>3,637</b> | <b>5,050</b>      | <b>57,954</b> | <b>56,328</b> | <b>4,347</b> | <b>3,171</b>      | <b>63,846</b> | <b>7,498</b> | <b>1,712</b> | <b>904</b>        | <b>10,114</b> |
| <b>BE</b>   | 69           | 0        | 37                | 106          | 1,103         | 29           | 52                | 1,184         | 1,301         | 64           | 40                | 1,405         | 162          | 12           | 21                | 195           |
| <b>BG</b>   | 264          | 0        | 26                | 290          | 2,440         | 21           | 70                | 2,531         | 1,584         | 56           | 57                | 1,697         | 112          | 10           | 10                | 132           |
| <b>CZ</b>   | 109          | 0        | 12                | 121          | 498           | 12           | 22                | 532           | 706           | 28           | 32                | 766           | 77           | 12           | 0                 | 89            |
| <b>DK</b>   | 20           | 0        | 5                 | 25           | 259           | 49           | 38                | 346           | 507           | 33           | 32                | 572           | 61           | 16           | 0                 | 77            |
| <b>DE</b>   | 253          | 1        | 130               | 384          | 10,013        | 1,061        | 564               | 11,638        | 10,638        | 1,204        | 427               | 12,269        | 1,429        | 714          | 183               | 2,326         |
| <b>EE</b>   | 67           | 0        | 8                 | 75           | 429           | 7            | 10                | 446           | 263           | 9            | 63                | 335           | 41           | 2            | 1                 | 44            |
| <b>IE</b>   | 297          | 0        | 10                | 307          | 1,498         | 9            | 37                | 1,544         | 2,181         | 13           | 36                | 2,230         | 321          | 1            | 20                | 342           |
| <b>EL</b>   | 136          | 0        | 30                | 166          | 1,951         | 17           | 182               | 2,150         | 5,242         | 125          | 118               | 5,485         | 663          | 61           | 13                | 737           |
| <b>ES</b>   | 139          | 0        | 62                | 201          | 1,823         | 63           | 90                | 1,976         | 3,117         | 187          | 97                | 3,401         | 509          | 52           | 21                | 582           |
| <b>FR</b>   | 251          | 0        | 1,997             | 2,248        | 6,903         | 1,312        | 2,586             | 10,801        | 6,891         | 1,036        | 1,199             | 9,126         | 588          | 195          | 251               | 1,034         |
| <b>HR</b>   | 29           | 0        | 4                 | 33           | 223           | 8            | 84                | 315           | 350           | 10           | 44                | 404           | 73           | 19           | 1                 | 93            |
| <b>IT</b>   | 306          | 0        | 79                | 385          | 2,741         | 402          | 171               | 3,314         | 5,870         | 678          | 196               | 6,744         | 1,169        | 268          | 112               | 1,549         |
| <b>CY</b>   | 1            | 0        | 3                 | 4            | 879           | 2            | 0                 | 881           | 263           | 2            | 12                | 277           | 16           | 1            | 0                 | 17            |
| <b>LV</b>   | 153          | 0        | 22                | 175          | 701           | 10           | 6                 | 717           | 291           | 23           | 86                | 400           | 28           | 6            | 0                 | 34            |
| <b>LT</b>   | 218          | 0        | 20                | 238          | 1,610         | 22           | 6                 | 1,638         | 656           | 39           | 78                | 773           | 67           | 10           | 1                 | 78            |
| <b>LU</b>   | 20           | 0        | 3                 | 23           | 1,109         | 81           | 1                 | 1,191         | 695           | 70           | 0                 | 765           | 39           | 10           | 0                 | 49            |
| <b>HU</b>   | 201          | 0        | 16                | 217          | 898           | 23           | 26                | 947           | 855           | 41           | 22                | 918           | 87           | 17           | 8                 | 112           |
| <b>MT</b>   | 14           | 0        | 0                 | 14           | 43            | 0            | 4                 | 47            | 267           | 2            | 2                 | 271           | 67           | 0            | 0                 | 67            |
| <b>NL</b>   | 56           | 0        | 28                | 84           | 905           | 22           | 78                | 1,005         | 1,616         | 82           | 41                | 1,739         | 268          | 38           | 39                | 345           |
| <b>AT</b>   | 24           | 0        | 14                | 38           | 1,433         | 122          | 44                | 1,599         | 1,331         | 155          | 66                | 1,552         | 182          | 69           | 28                | 279           |
| <b>PL</b>   | 279          | 2        | 27                | 308          | 1,718         | 57           | 33                | 1,808         | 1,734         | 74           | 36                | 1,844         | 417          | 50           | 14                | 481           |
| <b>PT</b>   | 113          | 0        | 11                | 124          | 513           | 22           | 141               | 676           | 914           | 45           | 50                | 1,009         | 217          | 23           | 15                | 255           |
| <b>RO</b>   | 484          | 0        | 5                 | 489          | 3,210         | 29           | 32                | 3,271         | 1,866         | 98           | 31                | 1,995         | 270          | 35           | 10                | 315           |
| <b>SI</b>   | 21           | 0        | 0                 | 21           | 149           | 2            | 6                 | 157           | 304           | 21           | 4                 | 329           | 51           | 4            | 0                 | 55            |
| <b>SK</b>   | 203          | 0        | 6                 | 209          | 3,468         | 8            | 23                | 3,499         | 3,207         | 18           | 24                | 3,249         | 219          | 9            | 3                 | 231           |
| <b>FI</b>   | 56           | 0        | 14                | 70           | 964           | 25           | 29                | 1,018         | 719           | 33           | 16                | 768           | 64           | 11           | 3                 | 78            |
| <b>SE</b>   | 134          | 4        | 39                | 177          | 927           | 174          | 164               | 1,265         | 1,308         | 90           | 34                | 1,432         | 148          | 20           | 12                | 180           |
| <b>UK</b>   | 63           | 0        | 172               | 235          | 859           | 48           | 552               | 1,459         | 1,652         | 111          | 327               | 2,090         | 153          | 47           | 138               | 338           |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; this implies a potential underestimation of outward degree mobility for other countries.

**Table A.10. Outward credit mobility by area of destination (ISCED 5-8), 2016: absolute values**

|             | EU28           | Europe non-EU | Africa       | Northern America | Caribbean, Central and South America | Asia          | Oceania      | Not specified | Total          |
|-------------|----------------|---------------|--------------|------------------|--------------------------------------|---------------|--------------|---------------|----------------|
| <b>EU28</b> | <b>192,491</b> | <b>13,690</b> | <b>6,662</b> | <b>38,105</b>    | <b>15,915</b>                        | <b>25,091</b> | <b>7,944</b> | <b>4,088</b>  | <b>303,996</b> |
| <b>BE</b>   | :              | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>BG</b>   | 899            | 103           | 0            | 17               | 0                                    | 0             | 0            | 0             | 1,019          |
| <b>CZ</b>   | 4,590          | 435           | 7            | 182              | 55                                   | 282           | 16           | 0             | 5,567          |
| <b>DK</b>   | 3,246          | 708           | 244          | 1,528            | 309                                  | 1,340         | 844          | 0             | 8,219          |
| <b>DE</b>   | :              | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>EE</b>   | :              | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>IE</b>   | :              | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>EL</b>   | 1,654          | 64            | 0            | 0                | 2                                    | 1             | 0            | 2             | 1,723          |
| <b>ES</b>   | 26,902         | 1,007         | 31           | 1,170            | 1,812                                | 554           | 145          | 1,866         | 33,488         |
| <b>FR</b>   | 72,732         | 4,916         | 2,558        | 22,224           | 8,130                                | 10,350        | 2,373        | 1,815         | 125,098        |
| <b>HR</b>   | 1,348          | 48            | 2            | 34               | 6                                    | 18            | 2            | 17            | 1,475          |
| <b>IT</b>   | 24,186         | 1,186         | 157          | 1,202            | 613                                  | 929           | 319          | 20            | 28,612         |
| <b>CY</b>   | 235            | 1             | 0            | 0                | 0                                    | 0             | 0            | 0             | 236            |
| <b>LV</b>   | 1,020          | 79            | 0            | 5                | 0                                    | 19            | 0            | 0             | 1,123          |
| <b>LT</b>   | 1,979          | 255           | 0            | 8                | 4                                    | 96            | 2            | 0             | 2,344          |
| <b>LU</b>   | 458            | 12            | 2            | 12               | 0                                    | 6             | 5            | 0             | 495            |
| <b>HU</b>   | 1,831          | 66            | 0            | 11               | 7                                    | 5             | 4            | 1             | 1,925          |
| <b>MT</b>   | 247            | 3             | 0            | 4                | 0                                    | 0             | 1            | 0             | 255            |
| <b>NL</b>   | 14,584         | 1,430         | 2,802        | 3,809            | 3,135                                | 5,086         | 1,459        | 310           | 32,616         |
| <b>AT</b>   | 6,021          | 790           | 154          | 1,152            | 320                                  | 744           | 258          | 2             | 9,448          |
| <b>PL</b>   | :              | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>PT</b>   | 4,898          | 205           | 17           | 48               | 446                                  | 81            | 14           | 0             | 5,709          |
| <b>RO</b>   | 2,154          | 172           | 1            | 1                | 6                                    | 26            | 3            | 1             | 2,364          |
| <b>SI</b>   | :              | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>SK</b>   | 629            | 72            | 5            | 4                | 0                                    | 119           | 1            | 0             | 830            |
| <b>FI</b>   | 6,061          | 769           | 263          | 550              | 226                                  | 1,348         | 168          | 15            | 9,400          |
| <b>SE</b>   | 3,419          | 476           | 95           | 1,562            | 212                                  | 1,197         | 602          | 1             | 7,564          |
| <b>UK</b>   | 13,398         | 893           | 324          | 4,582            | 632                                  | 2,890         | 1,728        | 38            | 24,486         |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [educ\\_uoe\\_mobc02](#).

Notes: Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. DE not reported because the country provided data only for the 10 most popular countries of destination, with all other countries included in the category 'Country of destination not specified'. (:) not available.

**Table A.11. Outward credit mobility by area of destination (ISCED 5), 2016: absolute values**

|             | EU28         | Europe non-EU | Africa     | Northern America | Caribbean, Central and South America | Asia       | Oceania   | Not specified | Total         |
|-------------|--------------|---------------|------------|------------------|--------------------------------------|------------|-----------|---------------|---------------|
| <b>EU28</b> | <b>9.289</b> | <b>928</b>    | <b>262</b> | <b>946</b>       | <b>90</b>                            | <b>673</b> | <b>21</b> | <b>81</b>     | <b>12.289</b> |
| <b>BE</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>BG</b>   | n.a.         | n.a.          | n.a.       | n.a.             | n.a.                                 | n.a.       | n.a.      | n.a.          | n.a.          |
| <b>CZ</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>DK</b>   | 347          | 39            | 9          | 43               | 10                                   | 92         | 12        | 0             | 552           |
| <b>DE</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>EE</b>   | n.a.         | n.a.          | n.a.       | n.a.             | n.a.                                 | n.a.       | n.a.      | n.a.          | n.a.          |
| <b>IE</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>EL</b>   | n.a.         | n.a.          | n.a.       | n.a.             | n.a.                                 | n.a.       | n.a.      | n.a.          | n.a.          |
| <b>ES</b>   | 1.894        | 18            | 0          | 0                | 0                                    | 0          | 0         | 0             | 1.912         |
| <b>FR</b>   | 6.893        | 859           | 245        | 845              | 62                                   | 550        | 0         | 81            | 9.535         |
| <b>HR</b>   | 0            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 0             |
| <b>IT</b>   | 0            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 0             |
| <b>CY</b>   | 2            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 2             |
| <b>LV</b>   | 39           | 1             | 0          | 0                | 0                                    | 0          | 0         | 0             | 40            |
| <b>LT</b>   | n.a.         | n.a.          | n.a.       | n.a.             | n.a.                                 | n.a.       | n.a.      | n.a.          | n.a.          |
| <b>LU</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>HU</b>   | 4            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 4             |
| <b>MT</b>   | 0            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 0             |
| <b>NL</b>   | 57           | 0             | 7          | 9                | 16                                   | 15         | 0         | 0             | 103           |
| <b>AT</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>PL</b>   | 0            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 0             |
| <b>PT</b>   | 0            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 0             |
| <b>RO</b>   | n.a.         | n.a.          | n.a.       | n.a.             | n.a.                                 | n.a.       | n.a.      | n.a.          | n.a.          |
| <b>SI</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>SK</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :             |
| <b>FI</b>   | n.a.         | n.a.          | n.a.       | n.a.             | n.a.                                 | n.a.       | n.a.      | n.a.          | n.a.          |
| <b>SE</b>   | 17           | 4             | 1          | 11               | 1                                    | 6          | 4         | 0             | 44            |
| <b>UK</b>   | 36           | 7             | 0          | 38               | 1                                    | 10         | 5         | 0             | 97            |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc02](#)].

Notes: Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. DE not reported because the country provided data only for the 10 most popular countries of destination, with all other countries included in the category 'Country of destination not specified'. (: ) not available.

**Table A.12. Outward credit mobility by area of destination (ISCED 6), 2016: absolute values**

|             | EU28          | Europe non-EU | Africa       | Northern America | Caribbean, Central and South America | Asia          | Oceania      | Not specified | Total          |
|-------------|---------------|---------------|--------------|------------------|--------------------------------------|---------------|--------------|---------------|----------------|
| <b>EU28</b> | <b>94,046</b> | <b>6,335</b>  | <b>2,816</b> | <b>18,061</b>    | <b>7,536</b>                         | <b>14,092</b> | <b>3,962</b> | <b>2,101</b>  | <b>148,956</b> |
| <b>BE</b>   | :             | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>BG</b>   | 525           | 59            | 0            | 14               | 0                                    | 0             | 0            | 0             | 598            |
| <b>CZ</b>   | 1,654         | 158           | 2            | 30               | 6                                    | 103           | 2            | 0             | 1,955          |
| <b>DK</b>   | 1,362         | 306           | 146          | 817              | 191                                  | 795           | 475          | 0             | 4,092          |
| <b>DE</b>   | :             | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>EE</b>   | :             | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>IE</b>   | :             | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>EL</b>   | 1,612         | 64            | 0            | 0                | 2                                    | 1             | 0            | 2             | 1,681          |
| <b>ES</b>   | 17,946        | 729           | 28           | 963              | 1,344                                | 484           | 122          | 1,306         | 22,923         |
| <b>FR</b>   | 19,746        | 1,092         | 251          | 7,077            | 2,155                                | 3,802         | 0            | 478           | 34,601         |
| <b>HR</b>   | 355           | 18            | 0            | 11               | 1                                    | 5             | 1            | 3             | 394            |
| <b>IT</b>   | 10,129        | 415           | 45           | 560              | 173                                  | 380           | 89           | 3             | 11,794         |
| <b>CY</b>   | 223           | 1             | 0            | 0                | 0                                    | 0             | 0            | 0             | 224            |
| <b>LV</b>   | 768           | 59            | 0            | 5                | 0                                    | 17            | 0            | 0             | 849            |
| <b>LT</b>   | 1,523         | 213           | 0            | 5                | 4                                    | 79            | 2            | 0             | 1,826          |
| <b>LU</b>   | 453           | 11            | 2            | 7                | 0                                    | 3             | 5            | 0             | 481            |
| <b>HU</b>   | 909           | 33            | 0            | 6                | 2                                    | 3             | 1            | 1             | 955            |
| <b>MT</b>   | 215           | 3             | 0            | 4                | 0                                    | 0             | 1            | 0             | 223            |
| <b>NL</b>   | 10,259        | 979           | 1,832        | 2,348            | 2,457                                | 3,841         | 998          | 269           | 22,985         |
| <b>AT</b>   | 2,937         | 371           | 71           | 621              | 184                                  | 440           | 125          | 2             | 4,755          |
| <b>PL</b>   | :             | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>PT</b>   | 3,196         | 130           | 11           | 37               | 218                                  | 54            | 12           | 0             | 3,658          |
| <b>RO</b>   | 1,293         | 108           | 0            | 1                | 4                                    | 21            | 2            | 1             | 1,430          |
| <b>SI</b>   | :             | :             | :            | :                | :                                    | :             | :            | :             | :              |
| <b>SK</b>   | 177           | 24            | 0            | 0                | 0                                    | 23            | 0            | 0             | 224            |
| <b>FI</b>   | 4,332         | 551           | 217          | 372              | 142                                  | 917           | 109          | 11            | 6,651          |
| <b>SE</b>   | 1,845         | 221           | 66           | 855              | 111                                  | 648           | 325          | 0             | 4,071          |
| <b>UK</b>   | 12,587        | 790           | 145          | 4,328            | 542                                  | 2,476         | 1,693        | 25            | 22,586         |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc02](#)].

Notes: Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. DE not reported because the country provided data only for the 10 most popular countries of destination, with all other countries included in the category 'Country of destination not specified'. (:) not available.

**Table A.13. Outward credit mobility by area of destination (ISCED 7), 2016: absolute values**

|             | EU28          | Europe non-EU | Africa       | Northern America | Caribbean, Central and South America | Asia         | Oceania      | Not specified | Total          |
|-------------|---------------|---------------|--------------|------------------|--------------------------------------|--------------|--------------|---------------|----------------|
| <b>EU28</b> | <b>87,841</b> | <b>6,251</b>  | <b>3,360</b> | <b>18,583</b>    | <b>8,144</b>                         | <b>9,887</b> | <b>3,884</b> | <b>1,868</b>  | <b>139,818</b> |
| <b>BE</b>   | :             | :             | :            | :                | :                                    | :            | :            | :             | :              |
| <b>BG</b>   | 349           | 41            | 0            | 2                | 0                                    | 0            | 0            | 0             | 392            |
| <b>CZ</b>   | 2,887         | 276           | 5            | 148              | 48                                   | 175          | 14           | 0             | 3,553          |
| <b>DK</b>   | 1,537         | 363           | 89           | 668              | 108                                  | 453          | 357          | 0             | 3,575          |
| <b>DE</b>   | :             | :             | :            | :                | :                                    | :            | :            | :             | :              |
| <b>EE</b>   | :             | :             | :            | :                | :                                    | :            | :            | :             | :              |
| <b>IE</b>   | :             | :             | :            | :                | :                                    | :            | :            | :             | :              |
| <b>EL</b>   | 42            | 0             | 0            | 0                | 0                                    | 0            | 0            | 0             | 42             |
| <b>ES</b>   | 7,062         | 260           | 3            | 207              | 468                                  | 70           | 23           | 560           | 8,653          |
| <b>FR</b>   | 45,558        | 2,916         | 2,028        | 14,113           | 5,863                                | 5,937        | 2,341        | 1,232         | 79,988         |
| <b>HR</b>   | 993           | 30            | 2            | 23               | 5                                    | 13           | 1            | 14            | 1,081          |
| <b>IT</b>   | 14,057        | 771           | 112          | 642              | 440                                  | 549          | 230          | 17            | 16,818         |
| <b>CY</b>   | 8             | 0             | 0            | 0                | 0                                    | 0            | 0            | 0             | 8              |
| <b>LV</b>   | 192           | 19            | 0            | 0                | 0                                    | 2            | 0            | 0             | 213            |
| <b>LT</b>   | 424           | 39            | 0            | 3                | 0                                    | 15           | 0            | 0             | 481            |
| <b>LU</b>   | 5             | 1             | 0            | 5                | 0                                    | 3            | 0            | 0             | 14             |
| <b>HU</b>   | 908           | 33            | 0            | 5                | 5                                    | 2            | 3            | 0             | 956            |
| <b>MT</b>   | 31            | 0             | 0            | 0                | 0                                    | 0            | 0            | 0             | 31             |
| <b>NL</b>   | 4,268         | 451           | 963          | 1,452            | 662                                  | 1,230        | 461          | 41            | 9,528          |
| <b>AT</b>   | 2,908         | 391           | 73           | 446              | 125                                  | 281          | 126          | 0             | 4,350          |
| <b>PL</b>   | :             | :             | :            | :                | :                                    | :            | :            | :             | :              |
| <b>PT</b>   | 1,689         | 74            | 6            | 10               | 226                                  | 27           | 2            | 0             | 2,034          |
| <b>RO</b>   | 827           | 61            | 1            | 0                | 2                                    | 5            | 1            | 0             | 897            |
| <b>SI</b>   | :             | :             | :            | :                | :                                    | :            | :            | :             | :              |
| <b>SK</b>   | 306           | 35            | 4            | 1                | 0                                    | 93           | 0            | 0             | 439            |
| <b>FI</b>   | 1,709         | 212           | 44           | 171              | 81                                   | 427          | 56           | 4             | 2,704          |
| <b>SE</b>   | 1,514         | 244           | 22           | 641              | 99                                   | 539          | 261          | 0             | 3,320          |
| <b>UK</b>   | 567           | 34            | 8            | 46               | 12                                   | 66           | 8            | 0             | 741            |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc02](#)].

Notes: Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. DE not reported because the country provided data only for the 10 most popular countries of destination, with all other countries included in the category 'Country of destination not specified'. (: ) not available.

**Table A.14. Outward credit mobility by area of destination (ISCED 8), 2016: absolute values**

|             | EU28         | Europe non-EU | Africa     | Northern America | Caribbean, Central and South America | Asia       | Oceania   | Not specified | Total        |
|-------------|--------------|---------------|------------|------------------|--------------------------------------|------------|-----------|---------------|--------------|
| <b>EU28</b> | <b>1,315</b> | <b>176</b>    | <b>224</b> | <b>515</b>       | <b>145</b>                           | <b>439</b> | <b>77</b> | <b>38</b>     | <b>2,933</b> |
| <b>BE</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>BG</b>   | 25           | 3             | 0          | 1                | 0                                    | 0          | 0         | 0             | 29           |
| <b>CZ</b>   | 49           | 1             | 0          | 4                | 1                                    | 4          | 0         | 0             | 59           |
| <b>DK</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>DE</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>EE</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>IE</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>EL</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>ES</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>FR</b>   | 535          | 49            | 34         | 189              | 50                                   | 61         | 32        | 24            | 974          |
| <b>HR</b>   | 0            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 0            |
| <b>IT</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>CY</b>   | 2            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 2            |
| <b>LV</b>   | 21           | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 21           |
| <b>LT</b>   | 32           | 3             | 0          | 0                | 0                                    | 2          | 0         | 0             | 37           |
| <b>LU</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>HU</b>   | 10           | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 10           |
| <b>MT</b>   | 1            | 0             | 0          | 0                | 0                                    | 0          | 0         | 0             | 1            |
| <b>NL</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>AT</b>   | 176          | 28            | 10         | 85               | 11                                   | 23         | 7         | 0             | 343          |
| <b>PL</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>PT</b>   | 13           | 1             | 0          | 1                | 2                                    | 0          | 0         | 0             | 17           |
| <b>RO</b>   | 34           | 3             | 0          | 0                | 0                                    | 0          | 0         | 0             | 37           |
| <b>SI</b>   | :            | :             | :          | :                | :                                    | :          | :         | :             | :            |
| <b>SK</b>   | 146          | 13            | 1          | 3                | 0                                    | 3          | 1         | 0             | 167          |
| <b>FI</b>   | 20           | 6             | 2          | 7                | 3                                    | 4          | 3         | 0             | 45           |
| <b>SE</b>   | 43           | 7             | 6          | 55               | 1                                    | 4          | 12        | 1             | 129          |
| <b>UK</b>   | 208          | 62            | 171        | 170              | 77                                   | 338        | 22        | 13            | 1,062        |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [[educ\\_uoe\\_mobc02](#)].

Notes: Values are the sum of the ISCED levels available for each country. The EU value is the sum of the available countries. DE not reported because the country provided data only for the 10 most popular countries of destination, with all other countries included in the category 'Country of destination not specified'. (:) not available.

**Table A.15. Inward degree mobility by area of origin (ISCED5-8), 2016: absolute values**

|             | EU28           | European non-EU | Africa        | Northern America | Caribbean, Central and South America | Asia           | Oceania      | Not specified | Total          |
|-------------|----------------|-----------------|---------------|------------------|--------------------------------------|----------------|--------------|---------------|----------------|
| <b>EU28</b> | <b>117,068</b> | <b>39,097</b>   | <b>25,674</b> | <b>14,206</b>    | <b>17,205</b>                        | <b>145,985</b> | <b>1,579</b> | <b>21,593</b> | <b>38,3087</b> |
| <b>BE</b>   | 7,440          | 266             | 1,223         | 128              | 311                                  | 610            | 14           | 3,925         | 13,917         |
| <b>BG</b>   | 553            | 1,125           | 40            | 27               | 3                                    | 207            | 4            | 0             | 1,959          |
| <b>CZ</b>   | 5,704          | 1,454           | 106           | 56               | 78                                   | 812            | 4            | 43            | 8,257          |
| <b>DK</b>   | 7,624          | 1,750           | 179           | 268              | 172                                  | 965            | 60           | 0             | 11,018         |
| <b>DE</b>   | 9,285          | 4,714           | 2,573         | 770              | 2,012                                | 13,373         | 117          | 5,749         | 38,593         |
| <b>EE</b>   | 343            | 140             | 40            | 11               | 20                                   | 130            | 2            | 9             | 695            |
| <b>IE</b>   | 1,876          | 118             | 252           | 829              | 91                                   | 2,204          | 58           | 290           | 5,718          |
| <b>EL</b>   | 992            | 223             | 38            | 26               | 8                                    | 84             | 2            | 98            | 1,471          |
| <b>ES</b>   | 3,843          | 676             | 467           | 464              | 5,902                                | 1,169          | 30           | 17            | 12,568         |
| <b>FR</b>   | :              | :               | :             | :                | :                                    | :              | :            | :             | :              |
| <b>HR</b>   | 36             | 90              | 1             | 8                | 0                                    | 5              | 0            | 0             | 140            |
| <b>IT</b>   | 4,320          | 4,122           | 1,991         | 215              | 1,665                                | 3,928          | 28           | 2,506         | 18,775         |
| <b>CY</b>   | 435            | 83              | 56            | 2                | 0                                    | 158            | 0            | 0             | 734            |
| <b>LV</b>   | 187            | 178             | 12            | 13               | 0                                    | 200            | 0            | 0             | 590            |
| <b>LT</b>   | 138            | 303             | 55            | 11               | 5                                    | 193            | 0            | 55            | 760            |
| <b>LU</b>   | 653            | 51              | 56            | 11               | 7                                    | 58             | 2            | 1             | 839            |
| <b>HU</b>   | 1,473          | 871             | 222           | 79               | 41                                   | 683            | 12           | 2             | 3,383          |
| <b>MT</b>   | 112            | 24              | 38            | 31               | 2                                    | 54             | 2            | 0             | 263            |
| <b>NL</b>   | 14,028         | 1,001           | 327           | 393              | 682                                  | 3,613          | 45           | 2,551         | 22,640         |
| <b>AT</b>   | 8,561          | 1,164           | 127           | 137              | 133                                  | 569            | 24           | 413           | 11,126         |
| <b>PL</b>   | 1,134          | 5,593           | 123           | 165              | 44                                   | 969            | 5            | 747           | 8,780          |
| <b>PT</b>   | 816            | 145             | 953           | 66               | 1,164                                | 373            | 10           | 0             | 3,527          |
| <b>RO</b>   | 1,071          | 2,269           | 411           | 42               | 18                                   | 601            | 3            | 5             | 4,420          |
| <b>SI</b>   | :              | :               | 4             | 10               | 4                                    | :              | 4            | :             | 696            |
| <b>SK</b>   | :              | :               | :             | :                | :                                    | :              | :            | 3,030         | 3,038          |
| <b>FI</b>   | 878            | 717             | 400           | 107              | 88                                   | 1,583          | 11           | 748           | 4,532          |
| <b>SE</b>   | 2,414          | 559             | 370           | 185              | 200                                  | 2,021          | 29           | 1,404         | 7,182          |
| <b>UK</b>   | 43,152         | 11,461          | 15,610        | 10,152           | 4,555                                | 11,1423        | 1,113        | 0             | 19,7466        |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; FR is underestimated because of missing inward degree mobility which overestimates the denominator.

**Table A.16. Inward degree mobility by area of origin (ISCED 5), 2016: absolute values**

|             | EU28         | European non-EU | Africa     | Northern America | Caribbean, Central and South America | Asia         | Oceania   | Not specified | Total         |
|-------------|--------------|-----------------|------------|------------------|--------------------------------------|--------------|-----------|---------------|---------------|
| <b>EU28</b> | <b>3,980</b> | <b>844</b>      | <b>673</b> | <b>286</b>       | <b>553</b>                           | <b>4,550</b> | <b>49</b> | <b>32</b>     | <b>10,991</b> |
| <b>BE</b>   | :            | :               | :          | :                | :                                    | :            | :         | :             | :             |
| <b>BG</b>   | n.a.         | n.a.            | n.a.       | n.a.             | n.a.                                 | n.a.         | n.a.      | n.a.          | n.a.          |
| <b>CZ</b>   | 8            | 3               | 0          | 0                | 0                                    | 2            | 0         | 0             | 13            |
| <b>DK</b>   | 1,485        | 78              | 17         | 7                | 13                                   | 139          | 4         | 0             | 1,743         |
| <b>DE</b>   | 0            | 0               | 0          | 0                | 0                                    | 0            | 0         | 0             | 0             |
| <b>EE</b>   | n.a.         | n.a.            | n.a.       | n.a.             | n.a.                                 | n.a.         | n.a.      | n.a.          | n.a.          |
| <b>IE</b>   | 123          | 1               | 11         | 13               | 3                                    | 75           | 1         | 13            | 240           |
| <b>EL</b>   | n.a.         | n.a.            | n.a.       | n.a.             | n.a.                                 | n.a.         | n.a.      | n.a.          | n.a.          |
| <b>ES</b>   | 264          | 66              | 96         | 6                | 348                                  | 39           | 0         | 12            | 831           |
| <b>FR</b>   | :            | :               | :          | :                | :                                    | :            | :         | :             | :             |
| <b>HR</b>   | 0            | 0               | 0          | 0                | 0                                    | 0            | 0         | 0             | 0             |
| <b>IT</b>   | 33           | 42              | 30         | 0                | 24                                   | 20           | 0         | 0             | 149           |
| <b>CY</b>   | 9            | 17              | 5          | 0                | 0                                    | 19           | 0         | 0             | 50            |
| <b>LV</b>   | 4            | 22              | 0          | 1                | 0                                    | 12           | 0         | 0             | 39            |
| <b>LT</b>   | n.a.         | n.a.            | n.a.       | n.a.             | n.a.                                 | n.a.         | n.a.      | n.a.          | n.a.          |
| <b>LU</b>   | 29           | 2               | 2          | 0                | 0                                    | 0            | 0         | 0             | 33            |
| <b>HU</b>   | 10           | 2               | 0          | 0                | 0                                    | 0            | 0         | 0             | 12            |
| <b>MT</b>   | 8            | 5               | 0          | 0                | 0                                    | 1            | 2         | 0             | 16            |
| <b>NL</b>   | 0            | 0               | 0          | 0                | 0                                    | 0            | 0         | 0             | 0             |
| <b>AT</b>   | 63           | 4               | 0          | 0                | 0                                    | 0            | 0         | 0             | 67            |
| <b>PL</b>   | :            | :               | :          | :                | :                                    | :            | :         | :             | :             |
| <b>PT</b>   | 0            | 0               | 1          | 0                | 0                                    | 0            | 0         | 0             | 1             |
| <b>RO</b>   | n.a.         | n.a.            | n.a.       | n.a.             | n.a.                                 | n.a.         | n.a.      | n.a.          | n.a.          |
| <b>SI</b>   | :            | :               | 1          | 1                | 0                                    | :            | 0         | :             | 26            |
| <b>SK</b>   | 4            | 4               | 0          | 0                | 0                                    | 0            | 0         | 0             | 8             |
| <b>FI</b>   | n.a.         | n.a.            | n.a.       | n.a.             | n.a.                                 | n.a.         | n.a.      | n.a.          | n.a.          |
| <b>SE</b>   | 2            | 0               | 0          | 0                | 0                                    | 6            | 0         | 7             | 15            |
| <b>UK</b>   | 1,938        | 598             | 510        | 258              | 165                                  | 4,237        | 42        | 0             | 7,748         |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; FR is underestimated because of missing inward degree mobility which overestimates the denominator.



**Table A.17. Inward degree mobility by area of origin (ISCED 6), 2016: absolute values**

|             | EU28          | European non-EU | Africa       | Northern America | Caribbean, Central and South America | Asia          | Oceania    | Not specified | Total          |
|-------------|---------------|-----------------|--------------|------------------|--------------------------------------|---------------|------------|---------------|----------------|
| <b>EU28</b> | <b>49,267</b> | <b>18,145</b>   | <b>7,966</b> | <b>3,064</b>     | <b>2,602</b>                         | <b>46,445</b> | <b>326</b> | <b>8,387</b>  | <b>136,440</b> |
| <b>BE</b>   | 4,117         | 65              | 278          | 19               | 45                                   | 81            | 3          | 980           | 5,588          |
| <b>BG</b>   | 179           | 644             | 13           | 20               | 1                                    | 87            | 1          | 0             | 945            |
| <b>CZ</b>   | 2,700         | 866             | 15           | 15               | 16                                   | 445           | 1          | 16            | 4,074          |
| <b>DK</b>   | 2,153         | 537             | 35           | 58               | 36                                   | 192           | 17         | 0             | 3,028          |
| <b>DE</b>   | 3,618         | 1,565           | 975          | 114              | 409                                  | 2,499         | 19         | 1,589         | 10,788         |
| <b>EE</b>   | 224           | 51              | 2            | 1                | 4                                    | 29            | 1          | 4             | 316            |
| <b>IE</b>   | 860           | 32              | 73           | 340              | 15                                   | 1,022         | 19         | 37            | 2,398          |
| <b>EL</b>   | 919           | 192             | 23           | 17               | 4                                    | 54            | 0          | 64            | 1,273          |
| <b>ES</b>   | 848           | 150             | 75           | 13               | 257                                  | 48            | 1          | 5             | 1,397          |
| <b>FR</b>   | :             | :               | :            | :                | :                                    | :             | :          | :             | :              |
| <b>HR</b>   | 5             | 16              | 1            | 1                | 0                                    | 1             | 0          | 0             | 24             |
| <b>IT</b>   | 2,190         | 2,211           | 1,165        | 133              | 830                                  | 1,532         | 17         | 1,533         | 9,611          |
| <b>CY</b>   | 298           | 33              | 26           | 1                | 0                                    | 99            | 0          | 0             | 457            |
| <b>LV</b>   | 42            | 87              | 6            | 2                | 0                                    | 89            | 0          | 0             | 226            |
| <b>LT</b>   | 45            | 183             | 45           | 6                | 2                                    | 46            | 0          | 4             | 331            |
| <b>LU</b>   | 178           | 9               | 30           | 0                | 0                                    | 8             | 0          | 1             | 226            |
| <b>HU</b>   | 611           | 408             | 81           | 29               | 7                                    | 197           | 5          | 0             | 1,338          |
| <b>MT</b>   | 42            | 8               | 12           | 1                | 0                                    | 6             | 0          | 0             | 69             |
| <b>NL</b>   | 6,856         | 307             | 87           | 49               | 124                                  | 967           | 11         | 1,523         | 9,924          |
| <b>AT</b>   | 4,030         | 535             | 32           | 31               | 35                                   | 131           | 5          | 154           | 4,951          |
| <b>PL</b>   | 345           | 3,250           | 45           | 7                | 11                                   | 387           | 1          | 747           | 4,793          |
| <b>PT</b>   | 262           | 37              | 454          | 14               | 165                                  | 71            | 2          | 0             | 1,005          |
| <b>RO</b>   | 197           | 1,367           | 107          | 7                | 7                                    | 115           | 0          | 0             | 1,800          |
| <b>SI</b>   | :             | :               | 0            | 2                | 1                                    | :             | 0          | :             | 243            |
| <b>SK</b>   | :             | :               | :            | :                | :                                    | :             | :          | 1,195         | 1,195          |
| <b>FI</b>   | 355           | 441             | 196          | 32               | 16                                   | 634           | 3          | 420           | 2,097          |
| <b>SE</b>   | 368           | 57              | 22           | 13               | 3                                    | 157           | 3          | 115           | 738            |
| <b>UK</b>   | 17,825        | 5,094           | 4,168        | 2,139            | 614                                  | 37,548        | 217        | 0             | 67,605         |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; FR is underestimated because of missing inward degree mobility which overestimates the denominator.

**Table A.18. Inward degree mobility by area of origin (ISCED 7), 2016: absolute values**

|             | EU28          | European non-EU | Africa        | Northern America | Caribbean, Central and South America | Asia          | Oceania      | Not specified | Total          |
|-------------|---------------|-----------------|---------------|------------------|--------------------------------------|---------------|--------------|---------------|----------------|
| <b>EU28</b> | <b>56,328</b> | <b>18,323</b>   | <b>15,214</b> | <b>9,382</b>     | <b>12,718</b>                        | <b>86,217</b> | <b>1,030</b> | <b>9,515</b>  | <b>209,053</b> |
| <b>BE</b>   | 3,026         | 169             | 810           | 97               | 212                                  | 422           | 9            | 2,426         | 7,171          |
| <b>BG</b>   | 357           | 443             | 23            | 7                | 2                                    | 115           | 3            | 0             | 950            |
| <b>CZ</b>   | 2,776         | 526             | 73            | 37               | 54                                   | 317           | 2            | 24            | 3,809          |
| <b>DK</b>   | 3,618         | 1,063           | 98            | 174              | 95                                   | 424           | 34           | 0             | 5,506          |
| <b>DE</b>   | 5,050         | 2,884           | 1,433         | 598              | 1,423                                | 9,776         | 92           | 1,626         | 22,882         |
| <b>EE</b>   | 109           | 80              | 38            | 9                | 14                                   | 93            | 1            | 4             | 348            |
| <b>IE</b>   | 770           | 73              | 138           | 440              | 61                                   | 999           | 28           | 230           | 2,739          |
| <b>EL</b>   | 56            | 25              | 10            | 8                | 4                                    | 25            | 2            | 24            | 154            |
| <b>ES</b>   | 2,731         | 460             | 296           | 445              | 5,297                                | 1,082         | 29           | 0             | 10,340         |
| <b>FR</b>   | :             | :               | :             | :                | :                                    | :             | :            | :             | :              |
| <b>HR</b>   | 30            | 54              | 0             | 5                | 0                                    | 4             | 0            | 0             | 93             |
| <b>IT</b>   | 1,837         | 1,685           | 701           | 68               | 665                                  | 1,918         | 8            | 973           | 7,855          |
| <b>CY</b>   | 123           | 32              | 23            | 1                | 0                                    | 40            | 0            | 0             | 219            |
| <b>LV</b>   | 125           | 68              | 5             | 7                | 0                                    | 98            | 0            | 0             | 303            |
| <b>LT</b>   | 90            | 119             | 10            | 5                | 3                                    | 145           | 0            | 49            | 421            |
| <b>LU</b>   | 382           | 35              | 20            | 7                | 6                                    | 36            | 2            | 0             | 488            |
| <b>HU</b>   | 801           | 438             | 138           | 48               | 33                                   | 466           | 7            | 2             | 1,933          |
| <b>MT</b>   | 57            | 11              | 26            | 30               | 2                                    | 47            | 0            | 0             | 173            |
| <b>NL</b>   | 6,429         | 495             | 161           | 285              | 445                                  | 2,022         | 29           | 764           | 10,630         |
| <b>AT</b>   | 4,019         | 560             | 78            | 92               | 78                                   | 325           | 19           | 246           | 5,415          |
| <b>PL</b>   | 789           | 2,343           | 78            | 158              | 33                                   | 582           | 4            | 0             | 3,987          |
| <b>PT</b>   | 480           | 93              | 439           | 43               | 803                                  | 205           | 6            | 0             | 2,069          |
| <b>RO</b>   | 860           | 878             | 298           | 35               | 11                                   | 436           | 3            | 5             | 2,526          |
| <b>SI</b>   | :             | :               | 1             | 4                | 2                                    | :             | 3            | :             | 338            |
| <b>SK</b>   | :             | :               | :             | :                | :                                    | :             | :            | 1,716         | 1,716          |
| <b>FI</b>   | 374           | 227             | 166           | 69               | 58                                   | 777           | 8            | 244           | 1,923          |
| <b>SE</b>   | 1,690         | 393             | 251           | 140              | 137                                  | 1,252         | 20           | 1,182         | 5,065          |
| <b>UK</b>   | 19,749        | 5,169           | 9,900         | 6,570            | 3,280                                | 64,611        | 721          | 0             | 110,000        |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

Notes: No inward degree mobility data available for FR, and for SI and SK by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; FR is underestimated because of missing inward degree mobility which overestimates the denominator.

**Table A.19. Inward degree mobility by area of origin (ISCED 8), 2016: absolute values**

|             | EU28         | European non-EU | Africa       | Northern America | Caribbean, Central and South America | Asia         | Oceania    | Not specified | Total         |
|-------------|--------------|-----------------|--------------|------------------|--------------------------------------|--------------|------------|---------------|---------------|
| <b>EU28</b> | <b>7,498</b> | <b>1,789</b>    | <b>1,821</b> | <b>1,474</b>     | <b>1,332</b>                         | <b>8,774</b> | <b>174</b> | <b>3,660</b>  | <b>26,603</b> |
| <b>BE</b>   | 297          | 32              | 135          | 12               | 54                                   | 107          | 2          | 519           | 1,158         |
| <b>BG</b>   | 17           | 38              | 4            | 0                | 0                                    | 5            | 0          | 0             | 64            |
| <b>CZ</b>   | 220          | 59              | 18           | 4                | 8                                    | 48           | 1          | 3             | 361           |
| <b>DK</b>   | 368          | 72              | 29           | 29               | 28                                   | 210          | 5          | 0             | 741           |
| <b>DE</b>   | 617          | 265             | 165          | 58               | 180                                  | 1,098        | 6          | 2,534         | 4,923         |
| <b>EE</b>   | 10           | 9               | 0            | 1                | 2                                    | 8            | 0          | 1             | 31            |
| <b>IE</b>   | 123          | 12              | 30           | 36               | 12                                   | 108          | 10         | 10            | 341           |
| <b>EL</b>   | 17           | 6               | 5            | 1                | 0                                    | 5            | 0          | 10            | 44            |
| <b>ES</b>   | :            | :               | :            | :                | :                                    | :            | :          | :             | :             |
| <b>FR</b>   | :            | :               | :            | :                | :                                    | :            | :          | :             | :             |
| <b>HR</b>   | 1            | 20              | 0            | 2                | 0                                    | 0            | 0          | 0             | 23            |
| <b>IT</b>   | 260          | 184             | 95           | 14               | 146                                  | 458          | 3          | 0             | 1,160         |
| <b>CY</b>   | 5            | 1               | 2            | 0                | 0                                    | 0            | 0          | 0             | 8             |
| <b>LV</b>   | 16           | 1               | 1            | 3                | 0                                    | 1            | 0          | 0             | 22            |
| <b>LT</b>   | 3            | 1               | 0            | 0                | 0                                    | 2            | 0          | 2             | 8             |
| <b>LU</b>   | 64           | 5               | 4            | 4                | 1                                    | 14           | 0          | 0             | 92            |
| <b>HU</b>   | 51           | 23              | 3            | 2                | 1                                    | 20           | 0          | 0             | 100           |
| <b>MT</b>   | 5            | 0               | 0            | 0                | 0                                    | 0            | 0          | 0             | 5             |
| <b>NL</b>   | 743          | 199             | 79           | 59               | 113                                  | 624          | 5          | 264           | 2,086         |
| <b>AT</b>   | 450          | 65              | 17           | 14               | 20                                   | 114          | 0          | 14            | 693           |
| <b>PL</b>   | :            | :               | :            | :                | :                                    | :            | :          | :             | :             |
| <b>PT</b>   | 74           | 15              | 59           | 9                | 196                                  | 97           | 2          | 0             | 452           |
| <b>RO</b>   | 14           | 24              | 6            | 0                | 0                                    | 50           | 0          | 0             | 94            |
| <b>SI</b>   | :            | :               | 2            | 3                | 1                                    | :            | 1          | :             | 89            |
| <b>SK</b>   | :            | :               | :            | :                | :                                    | :            | :          | 119           | 119           |
| <b>FI</b>   | 149          | 49              | 38           | 6                | 14                                   | 172          | 0          | 84            | 512           |
| <b>SE</b>   | 354          | 109             | 97           | 32               | 60                                   | 606          | 6          | 100           | 1,364         |
| <b>UK</b>   | 3,640        | 600             | 1,032        | 1,185            | 496                                  | 5,027        | 133        | 0             | 12,113        |

Source: JRC calculations based on Eurostat (UOE; 2016). Online data codes: [\[educ\\_uoe\\_mobg02\]](#) for degree mobile graduates in EU, EFTA, EEA and candidate countries; and OECD, International graduates, for degree mobile graduates who graduated in non-European countries (AUS, BR, CAN, CL, CO, IL, RUS, NZ).

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## List of abbreviations

### Country codes

|    |                |     |                                       |
|----|----------------|-----|---------------------------------------|
| AT | Austria        | PT  | Portugal                              |
| BE | Belgium        | RO  | Romania                               |
| BG | Bulgaria       | SE  | Sweden                                |
| CY | Cyprus         | SI  | Slovenia                              |
| CZ | Czech Republic | SK  | Slovakia                              |
| DE | Germany        | UK  | United Kingdom                        |
| DK | Denmark        | CH  | Switzerland                           |
| EE | Estonia        | IS  | Iceland                               |
| EL | Greece         | MK  | Former Yugoslav Republic of Macedonia |
| ES | Spain          | NO  | Norway                                |
| FI | Finland        | RS  | Serbia                                |
| FR | France         | TK  | Turkey                                |
| HR | Croatia        | EUR | Europe                                |
| HU | Hungary        | RUS | Russia                                |
| IE | Ireland        | AUS | Australia                             |
| IT | Italy          | CAN | Canada                                |
| LT | Lithuania      | BR  | Brazil                                |
| LU | Luxembourg     | CL  | Chile                                 |
| LV | Latvia         | CO  | Colombia                              |
| MT | Malta          | IL  | Israel                                |
| NL | Netherlands    | NZ  | New Zealand                           |
| PL | Poland         |     |                                       |

### Abbreviations

|         |  |
|---------|--|
| ECTS    | European Credit Transfer System                                    |
| ET 2020 | Education and Training 2020  |
| EU      | European Union   |
| ISCED   | International Standard Classification of Education                 |
| OECD    | Organisation for Economic Co-operation and Development             |
| UOE     | UIS (UNESCO Institute of Statistics)/OECD/Eurostat data collection |

### ISCED 2011 levels

|           |                                 |
|-----------|---------------------------------|
| ISCED 5-8 | Tertiary education (levels 5-8) |
| ISCED 5   | Short-cycle tertiary education  |
| ISCED 6   | Bachelor's or equivalent level  |
| ISCED 7   | Master's or equivalent level    |
| ISCED 8   | Doctoral or equivalent level    |

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