

## JRC TECHNICAL REPORT

# Evidence on study abroad programmes: Data and indicators

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## Contents

Acknowledgements .....	2
Abstract .....	3
1 Introduction.....	4
1.1 The aim of this report.....	5
1.2 Scope .....	5
1.3 Methodology .....	6
1.4 The structure of the report.....	6
2 Data sources.....	7
2.1 Administrative data.....	9
2.2 Survey data.....	10
2.2.1 European surveys addressed to mobile students (ERASMUS) who were contacted shortly after returning home.....	10
2.2.2 European surveys addressed to both mobile and non-mobile students.....	11
2.2.3 European surveys addressed to graduates who participated in the ERASMUS programme during their university years .....	12
2.2.4 European surveys addressed to both mobile and non-mobile graduates.....	12
2.2.5 European surveys addressed to both mobile and non-mobile students and graduates.....	13
2.2.6 National student surveys addressed to both mobile and non-mobile students.....	14
2.2.7 National graduate surveys addressed to both mobile and non-mobile students.....	15
3 Indicators.....	17
3.1 Existing indicators on participation in study abroad programmes.....	17
3.2 Proposals for new indicators on participation in study abroad programmes.....	21
3.3 Existing indicators on the labour market effects of studying abroad.....	21
3.4 Proposals for new indicators on the labour market effects of studying abroad.....	24
3.5 Existing indicators on the non-labour market effects of studying abroad.....	24
3.6 Proposals for new indicators on the non-labour market effects of studying abroad.....	25
4 Conclusions.....	26
References.....	28
List of boxes.....	32
List of figures.....	33
List of tables.....	34

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## **Abstract**

There is a large consensus among policymakers and scholars that spending time abroad during university studies is highly beneficial to students in terms of their professional and personal development. This calls for an increasing amount of resources to be channelled to support students willing to study abroad. However, this significant investment in international student mobility programmes needs to be accompanied by a systematic monitoring of who studies abroad and what are the effects associated with studying abroad. The availability of appropriate data and indicators is essential to be able to do this. This paper provides an overview of existing national and international data sources on international student mobility. Both administrative and survey data are considered. It also looks at the wide range of indicators that have been used to measure participation in study abroad programmes and its effects on labour market and non-labour market outcomes. Suggestions about new indicators covering dimensions that perhaps have been overlooked or under-explored are given.

# 1 Introduction

One of the most important goals of the European Commission in the area of education and training has been the promotion of international student mobility. ERASMUS+, the European Union (EU)'s flagship student mobility programme (running between 2014 and 2020), is expected to reach out to 2 million students (European Commission, 2014a). Its predecessor programme, ERASMUS, benefited 3.3 million students between its inception in 1987 and the end of the academic year 2013/14 (European Commission, 2015). There are already plans to expand and enhance the ERASMUS+ programme. The European Parliament, in a resolution adopted on 14<sup>th</sup> March 2018, proposed to triple the ERASMUS+ budget for the Multiannual Financial Framework for 2021-2027. It is argued that such an increase is necessary in order to make the ERASMUS+ “more inclusive by reaching people with fewer opportunities”<sup>1</sup>. This proposal was recently backed up by the President of the European Commission, Ursula von der Leyen, in an opening statement in the European Parliament plenary session on 16<sup>th</sup> July 2019<sup>2</sup>.

The expansion of the ERASMUS programme has gone hand-in-hand with the EU policymakers' drive to increase international student mobility. This programme was initially created with the vision that eventually 10% of students would spend some time abroad during their university studies (Teichler, 2015). The Bologna Declaration of 1999 called for the establishment of a common structure of study programmes and degrees across European countries, thereby supporting student exchange schemes. The Leuven Communiqué of 2009 set up a higher target rate for international student mobility. By 2020 at least 20% of all graduates from the European Higher Education Area should have benefited from a study period abroad (EMRHE, 2009).

The significant amount of resources that are and will be available to support students willing to undertake a study abroad experience (through ERASMUS+ as well as through other programmes) underscores the need to systematically monitor who studies abroad and what are the effects of participation in international study mobility programmes. It is often claimed that these programmes are expected to affect the labour market and non-labour market outcomes of participants. At the same time, as stated earlier, it is important to ensure widening participation and encouraging a diverse student body to study abroad.

Participation in study abroad programmes is expected to be inclusive. A fair opportunity to study abroad should be given to less advantaged students (in terms of parental education, parental income, disability, migration history, ethnicity, etc.). EU policymakers have acknowledged that more efforts should be made to reduce the social selectivity of studying abroad (Powell and Finger, 2013). For instance, the European Ministers Responsible for Higher Education have called for “an improved participation rate from diverse student groups” (EMRHE, 2009, p. 5). The commitment to inclusion has been stressed with the launch of the ERASMUS+ (European Commission, 2014b). Improving access to study abroad programmes among more vulnerable students is also the subject of a tweet from Tibor Navracsics, the former European Commissioner for Education, Culture, Youth and Sport, on 24<sup>th</sup> July 2017: ‘How can we make #ErasmusPlus even more open to people from all backgrounds?’ (Navracsics, 2017).

It is often argued that participation in study abroad programmes is likely to improve labour market prospects (employability and earnings potential). It gives students the opportunity to acquire a vast array of skills (such as, for instance, intercultural competence, global awareness, and foreign language skills) that can help them successfully compete in the labour market. An international education experience is positively valued by many companies and especially multinationals. Having studied abroad may also enable students to have a wider job search radius following graduation. They can make contacts with relevant firms as well as acquiring information on foreign labour market opportunities while studying abroad (Di Pietro, 2019). Additionally, students may rely on friends met during their study abroad experience to look for a job in a foreign country.

Participation in study abroad programmes may support students' personal growth. It is likely to enhance students' confidence and self-awareness. While studying and living abroad, students have to deal with new and unexpected situations, which allow them to become more confident, mature, and self-reliant. Additionally, a stay abroad can help students gain clarity about their career goals. Explorative, co-curricular, and out-of-class learning experiences may improve students' ability to make career decisions in line with their personal interests. This could ignite passion for a career direction such as working abroad or in an international environment, working for specific types of employers, etc.

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<sup>1</sup> [https://www.europarl.europa.eu/doceo/document/TA-8-2019-0324\\_EN.pdf?redirect](https://www.europarl.europa.eu/doceo/document/TA-8-2019-0324_EN.pdf?redirect)

<sup>2</sup> [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_19\\_4230](https://ec.europa.eu/commission/presscorner/detail/en/speech_19_4230)

Finally, study abroad programmes may contribute to the creation of a European identity among its participants. Creating a European identity is the 'civic' rationale behind the ERASMUS programme (Papatsiba, 2006) and it may lead to continuing support for European political integration (Bruter, 2003).

## 1.1 The aim of this report

In recent years, there has been a significant increase in the number of empirical studies looking at participation in study abroad programmes and its impact in the short and medium term. This reflects a greater interest in the topic, but it has also been made possible by the increased availability of data. The aim of this study is twofold. First, it provides an overview of existing national and European data sources on international student mobility. This comprises, for instance, ERASMUS/ERASMUS+ administrative data as well as national and European survey data that include information on participation in study abroad programmes. Not only is such overview needed in light of the proliferation of recent studies, but also because relevant information is sparse. This information is contained in different types of studies (e.g. academic papers, policy reports, statistical documents, etc.) spanning across various fields (e.g. economics, sociology, business, etc.). Furthermore, while accumulating new data, there is the risk that older information is 'forgotten' (some data refer to the second half of the 1980s).

The second aim of this study is to review existing indicators/measures related to participation in study abroad programmes and its effects in terms of participants' professional and personal growth. We look at available statistics that can be used to monitor the degree of inclusiveness of study abroad programmes and whether they are comparable across countries and/or time. Similarly, this paper examines how different national and cross-national studies have measured the impact of participation in study abroad programmes on labour market and non-labour market outcomes. Suggestions on new indicators/measures are also provided.

## 1.2 Scope

This report focuses on students/graduates who have had a study abroad experience by being temporarily enrolled at a foreign higher education institution (credit mobility study period). Academic credits gained by students while abroad are expected to be recognised by their home institution on their return.

### **Box 1. Degree mobility (or mobility for the whole degree programme)**

In contrast to credit mobile students, degree mobile students are those who are enrolled as regular students at a higher education institution located in a different country from the one where they have obtained their upper secondary qualification. Degree mobile graduates are those who have successfully completed their higher education studies in a different country from the one where they had received their upper secondary diploma.

Credit mobility stay may occur through ERASMUS+, other EU programmes as well as through other international or national programmes including bi or multilateral programmes such as partnerships between universities, or students organising their own mobility, which is then credited by their home institution (OECD, 2019). For instance, the Nordic and Baltic countries implement the Nordplus Higher Education Programme whose objectives include the development of joint study mobility programmes involving student and teaching mobility.

### **Box 2. Other forms of credit mobility**

Although the majority of credit mobile students are those who spend part of their studies at a foreign higher education institution, credit mobility can also take the form of work placement (international traineeship/internship). The work placement can also be combined with study period.

### **Box 3. Other forms of short-term mobility that are not part of credit mobility**

Other study-related experiences abroad are: summer schools, language courses, research stay, etc. However, these are not included in the category of credit mobility because students normally do not earn any academic credit from these experiences.

We focus on ISCED 2011 level 6 students/graduates, thereby excluding from the analysis data and studies exclusively relating to postgraduate and doctoral programmes. Statistics and indicators only related to mobile (academic and non-academic) staff are also not covered by this report. Similarly, we do not review surveys where just employers are asked about their experiences and attitudes towards graduates who have had a study abroad experience while being at university. Finally, when reviewing existing indicators about participation in study abroad programmes and its impact, while we cite studies that use these, the results obtained and the method/s employed by the author/s are not discussed. The ultimate objective of this report is to show what evidence exists and where it can be found, but it is up to readers, if they want, to get more detailed information (references throughout the text will, however, help readers locate this additional information).

### **1.3 Methodology**

This report was carried out through extensive desk research. Several databases and search engines (e.g. Google Scholar and Scopus) were used in order to find relevant peer-reviewed journal articles, books, working papers and statistical/policy reports. Works were selected irrespective of the method employed. Additionally, websites providing information about international student mobility were consulted. Important sources were the websites of European and national statistical institutions and Higher Education Ministries. A snowball approach revealed further sources.

### **1.4 The structure of the report**

The remainder of the report is as follows. Section 2 identifies European and national data sources related to international student mobility. It first looks at administrative sources, then it examines survey data. Section 3 provides a comprehensive overview of the indicators on international student mobility that have been developed based on the available data. Measures about different aspects of participation in study abroad programmes are reviewed first, followed by an examination of indicators related to the effects of these programmes on labour market outcomes as well as on other outcomes (e.g. European identity, postgraduate studies and personal development). This section includes also ideas about new measures that are likely to capture overlooked and/or under-explored dimensions of international student mobility. Section 4 concludes.

## 2 Data sources

This Section gives a description of the different types of data sources on study abroad programmes and, where possible, discusses their advantages and limitations. There are two main types of data sources: administrative data and survey data.

### Box 4. Administrative data

Administrative data are gathered by governmental agencies and other organizations. They are routinely collected and stored. Examples of administrative data include education records, tax records, transaction records and medical records.

Only administrative sources providing European internationally comparable data are examined in this report. These are: European Commission, UNESCO-OECD-EUROSTAT (UOE) and EUROSTAT. They mainly collect data on participation in study abroad programmes across countries and over years. While information on participation in the ERASMUS programme is available since its introduction, data on participation in other types of study abroad programmes is only available for more recent years.

As shown in Figure 1, relevant surveys can be national or European<sup>3</sup>. The latter are typically targeted at students, graduates or both groups<sup>4</sup>. They are addressed to the whole student/graduate population or only to those students/graduates who have had a study abroad experience (mainly former ERASMUS participants). The national surveys are targeted at students or graduates and they include both mobile and non-mobile students/graduates.

One of the main differences between administrative and survey data is that, while the latter have been specifically designed for analytical purposes, this is not the case for the former (Penneck, 2007). Nevertheless, in surveys the size of the sample can be an issue, especially when it is not very large. On the other hand, large-scale surveys tend to be very expensive.

A significant limitation of administrative data is that they do not provide information on people's opinions, thoughts and feelings. This means, for instance, that this type of data cannot be used to study the extent to which former internationally mobile students are satisfied with their study abroad experience.

A main issue in surveys is that the sample should be representative of the population being investigated, i.e. it needs to accurately reflect the characteristics of the population. This makes it possible to generalize the results from the research sample to the population as a whole. Similarly, it is important to ensure that a high response rate is achieved and that there is no missing information on key variables<sup>5</sup>. Among these, in the context of study abroad, the university attended by the student/graduate plays a particularly important role<sup>6</sup>. Although all these considerations are pertinent, reviewing surveys based on the quality of the data they provide is outside the scope of this work. Different aspects of relevant surveys are discussed, but no comments specifically related to the quality of the data (apart from sample size and response rate in some cases) are made.

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<sup>3</sup> In addition to national and European surveys, there are also relevant student and graduate surveys conducted by one or more specific universities located in one or more European countries. However, given their high number, reviewing these surveys is beyond the scope of this report.

<sup>4</sup> Although the large majority of surveys providing data on study abroad programmes are graduate and student surveys, relevant information is also exceptionally contained in surveys targeted at the whole population (e.g. German National Educational Panel Study (NEPS), called Working and Learning in a Changing World (German acronym, ALWA)).

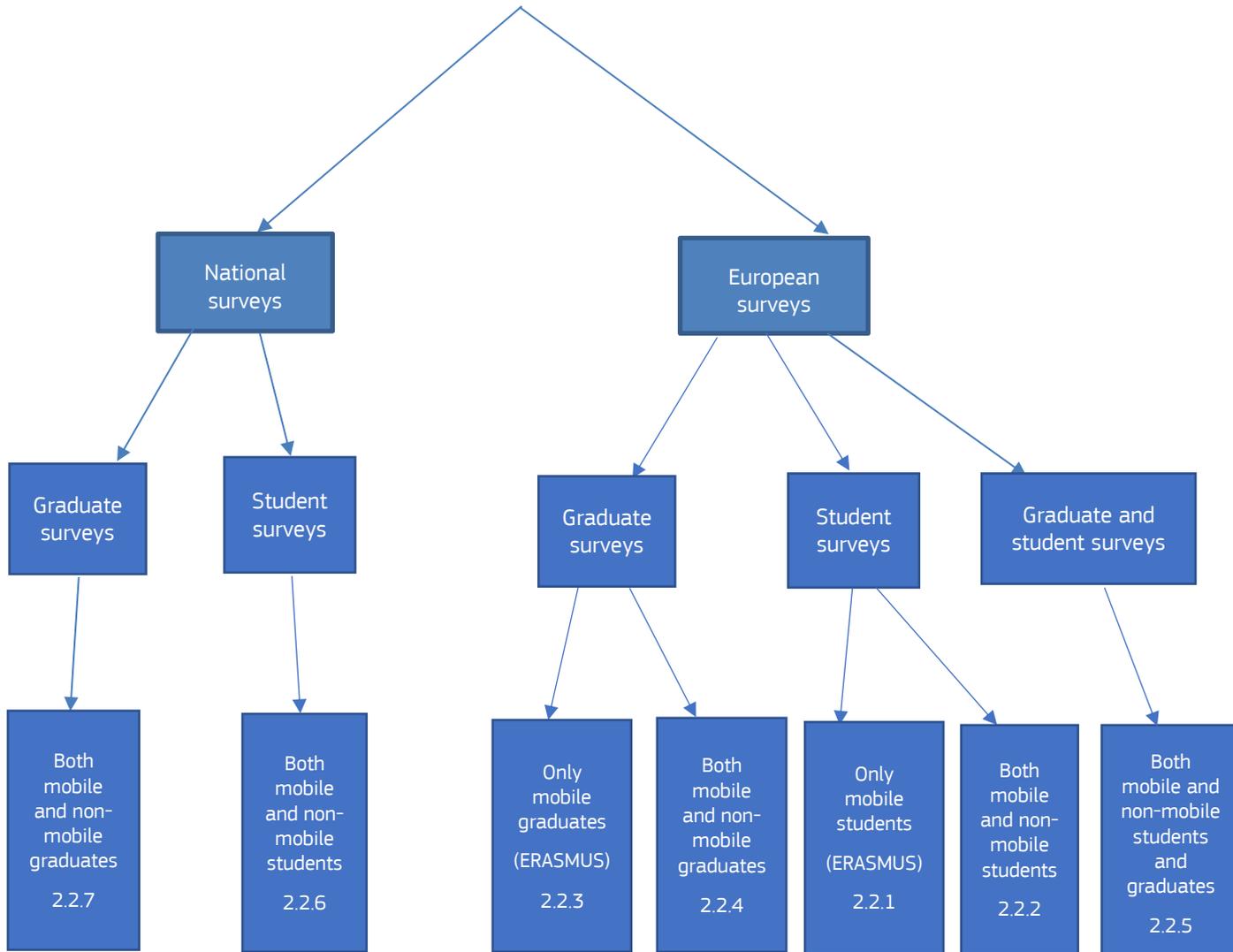
<sup>5</sup> Key variables may not be included in surveys or respondents may systematically skip the question/s about them.

<sup>6</sup> This allows for the inclusion of university fixed effects in statistical models. They control for time-invariant university characteristics that may affect both students' participation in study abroad programmes as well as graduates' labour market outcomes. This ultimately helps to isolate the effect of university from that associated with individual factors.

### Box 5. Survey data

Survey data are collected from a targeted group of individuals in order to gain information about their opinions, behaviour or knowledge (e.g. labour force survey, time use survey and social survey).

Figure 1: Survey data on international student mobility



### Box 6. Graduate surveys

In graduate surveys recent graduates are asked what they are doing after completion of their studies, whether they are working, continuing to study or pursuing other interests. They often combine information on post-graduate outcomes with data on previous educational experiences. As depicted in the above Figure, these surveys can be addressed only to graduates who have had a study abroad experience during their university years or to all graduates, and in the latter case they collect information about participation in study abroad programmes.

## Box 7. Student surveys

Student surveys gather information about the living, learning and working conditions of higher education students. As illustrated above, these surveys can be addressed only to students who have had a study abroad experience or to all students, and in the latter case they collect information about participation in study abroad programmes.

### 2.1 Administrative data

#### a) European Commission

The European Commission has been systematically publishing statistics on the ERASMUS and ERASMUS+ programmes. These statistics are typically produced on yearly basis and some of them cover a long period of time as they are available since the introduction of the ERASMUS in 1987<sup>7</sup>.

#### b) UNESCO-OECD-EUROSTAT (UOE)

The three supranational agencies, briefly called UOE, have been collaborating for quite some time in the collection of data related to students studying abroad. They contact national agencies responsible for the collection of educational data and ask them to supply national statistics according to a set of definitions and operational guidelines that is updated every year (Teichler, 2012). However, until very recently, it was difficult to extrapolate from these statistics only credit mobile students. UOE has essentially focused on foreign students and by aggregating the information on the individual country of origin, it was possible to compute the number of students from each country that study abroad. Nevertheless, by doing so, the category of study abroad students include both degree and credit mobile students<sup>8</sup> (Flisi et al., 2015). Nevertheless, using the UOE database, several indicators related just to credit mobility for OECD European countries have been published in the 2019 edition of Education at Glance (OECD, 2019).

#### c) EUROSTAT

EUROSTAT has recently started to supply aggregate data on international student mobility. Specifically, it reports the number of credit mobile graduates (at least 3 months abroad) by education level, type of mobility scheme, type of mobility and sex ([http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ\\_uoe\\_mobc01&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uoe_mobc01&lang=en)). These statistics are currently provided for 2016 and 2017.

The above EUROSTAT data on international student mobility combined with OECD data on graduates have been used to produce indicators on credit outward mobility of graduates published in the 2018 and 2019 editions of Education and Training Monitor Report (European Commission, 2018b and 2019).

<sup>7</sup> European Commission (2009, Annex 1) for 1987/88 to 2006/07, European Commission (2013, Annex 1, Part 2) for 2008/09 and 2010/11, European Commission (2014c, Annex 1) for 2012/13, European Commission (2015) for 2013/14, European Commission (2017a, Annex 1 Statistical Annex) for 2014/15, European Commission (2017b, Statistical Annex) for 2015/6 and European Commission (2018a, Statistical Annex) for 2016/17.

<sup>8</sup> An additional problem is that this definition does not consider that many people move abroad at the beginning of their life and hence were already living and studying in a country different from that of their nationality before they started higher education.

## 2.2 Survey data

We first review European-level survey data on students or/and graduates and then look at national surveys.

### 2.2.1 European surveys addressed to mobile students (ERASMUS) who were contacted shortly after returning home

#### a) Survey: Experiences of ERASMUS Students 1988/89

A representative sample of ERASMUS students of the academic year 1988/89 was surveyed shortly after their return to their home country. The final sample comprises 3,212 students from 11 countries and the response rate was 66.8%. Respondents were asked to provide information on their educational background and their study abroad experience including support provided by the host university, type of accommodation abroad, foreign language proficiency before and after the study abroad period, financial resources and expenses, knowledge of and opinion about the host country culture and society and academic achievements and recognition of study abroad. More details about this survey and its results can be found in Teichler (1991).

#### b) The experiences of ECTS students in 1989/90

This survey builds on the work of the previous survey addressed to students returning home following their study abroad experience. The aim of the survey was to monitor and evaluate the ERASMUS programme. 339 students from 11 countries filled in the relevant questionnaire that comprised 24 pages and had more than 70 questions. The response rate was the same as that in the ERASMUS 1988/89 student survey (i.e. 66.8%), though the ECTS student questionnaire was considerably longer than the one sent to the ERASMUS students of the preceding year. Additional information about this survey and its findings can be found in Maiworm et al. (1992).

#### c) Student Report 1989/90

In this survey ERASMUS students of the academic year 1989/90 were asked to report about different aspects of their recent study abroad experience. The questionnaire was 4 page long and included more than 24 questions. The final sample size comprises 5,139 students from 10 countries. On average, 27% of ERASMUS students from each country was covered by the survey. Additional information on this survey and its results can be found in Teichler et al. (1993).

#### d) Survey into the socio-economic background of Erasmus students in 1997/98

This postal survey has been conducted at the end of 1998 and was primarily designed to give an overview of the ERASMUS student population from a social and economic point of view. More than 20,000 students or nearly one-quarter of those who took part in the ERASMUS programme in the academic year 1997/98 were contacted. This survey covered 300 higher education institutions across 15 countries. The overall response rate was 46% and the total number of respondents was 9,463. More details on this survey and its results can be found in European Commission, DG Education and Culture (2000).

#### e) Survey of the socio-economic background of ERASMUS students

The objective of this survey was to update a similar survey carried by the European Commission in 1998 and whose results were published in 2000 (see point d) above). This survey was conducted in 2006, was targeted to students who participated in the ERASMUS programme in the academic year 2004/05 and it was an online survey. The link to it was given to all the ERASMUS participant universities in the programme, which in turn distributed it amongst the students who took part in the programme in the year of reference. Overall, 15,513 valid answers from 30 countries were received. Additional information about this survey and its results can be found in Souto Otero and McCoshan (2006).

Although this kind of surveys has the advantage of gathering important information about the study abroad experience of many ERASMUS participants, there is no control/comparison group. The focus is on students who have undertaken a study abroad experience. There is no information on students who did not participate in study abroad programmes. However, collecting information also about non-mobile students is very important as, for instance, it would help us to understand to what extent students from less advantaged backgrounds are under-represented in the ERASMUS programme, e.g. one can compare the ratio of ERASMUS participants from less advantaged backgrounds to the total number of ERASMUS participants with the ratio of students from less advantaged backgrounds to the total number of higher education students. Additionally, surveys targeted to both mobile and non-mobile students may investigate what factors have deterred the latter group from participating in study abroad programmes. Another factor to bear in mind is that ERASMUS students

represent a proportion of the study abroad population. A significant number of students study abroad through mobility programmes other than ERASMUS or study abroad periods can also be independently organised.

## 2.2.2 European surveys addressed to both mobile and non-mobile students

### a) Eurostudent survey- Social and Economic conditions of student life in Europe

The Eurostudent project started as a joint European project at the Conference of Directors General for Higher Education in the EU Member States, which took place in Weimar, Germany, in 1999. The conference recommended that a European social survey be conducted among tertiary education students.

This project aims at producing and reporting the same set of indicators on the social and economic conditions of student life for several European countries. These indicators are drawn from data coming from national surveys. Each participating country is responsible for collecting relevant information among students enrolled at their higher education institutions<sup>9</sup>. Among the wide range of education-related topics addressed by this project there is also international mobility.

Table 1 reports the different rounds of the Eurostudent survey as well as the number of participant countries. As regards temporary enrolment at foreign higher education institutions (credit mobility), several relevant indicators are included in the various rounds of this survey. They concern, for instance, the demographic and socio-economic characteristics of the study abroad student population, primary source of funding used for enrolment abroad, recognition of credit earned abroad and study abroad participation by field of study. However, it is important to note that not always the same indicators are reported in the different rounds of the survey.

Table 1: Eurostudent survey

Euro student round	Number of participating countries	Report
Eurostudent survey VI (2016-2018)	28	Hauschildt et al. (2018)
Eurostudent survey V (2012-2015)	30	Hauschildt et al. (2015)
Eurostudent survey IV (2008-2011)	24	Orr et al. (2011)
Euro student survey III (2005-2008)	23	Orr et al. (2008)
Eurostudent survey II 2005	11	HIS (2005)
Eurostudent survey I 2000	8	HIS (2002)

### b) IMPAER (Improving Participation in ERASMUS) survey

This is an online survey of ERASMUS and non-ERASMUS students commissioned by the European Parliament and carried out in 2010 in 7 countries. The goal of this survey was to identify perceived financial barriers and how they affect ERASMUS participation. The survey is based on two slightly different questionnaires - one for the ERASMUS participants and one for non-mobile students. The former group is made up by students who participated in the programme in the academic years 2008/09 and 2009/10. The final sample includes

<sup>9</sup> Unfortunately, in some countries the response rate is quite low. Additionally, it is important to note that differences between countries cannot be tested for statistical significance.

21,145 responses, from which 8,697 responses come from non-ERASMUS students and 12,448 responses from ERASMUS students. More details on this survey and its results can be found in Vossensteyn et al. (2010).

Despite the advantage of targeting both mobile and non-mobile students, these surveys have an important limitation. Students are contacted throughout their academic career before they complete their studies. However, some students who reported not having studied abroad will undertake this experience before they graduate. This means that the international student mobility rate is likely to be underestimated in these surveys (some surveys, like for the instance the Eurostudent survey, attempt to account for this problem by reporting information also for students who have not studied abroad yet but are planning to do it). From this point of view, graduate surveys provide a more accurate picture as they look at individuals who have their whole study period behind them.

### **2.2.3 European surveys addressed to graduates who participated in the ERASMUS programme during their university years**

#### **a) Follow-up of the survey on Experiences of ERASMUS Students 1988/89**

A representative sample of ERASMUS students of the academic year 1988/1989 was surveyed about 3 years and finally about 5 years later. While the results of the first survey are reported and discussed in Teichler and Maiworm (1994), the findings emerging from the successive survey are documented and examined in Maiworm and Teichler (1996). The goal of these surveys was to inform about the transition to work and the early career of former ERASMUS participants. These surveys were part of a longitudinal study collecting information about students who spent an ERASMUS-supported study period in another European country in the academic year 1988/89. These students were first contacted in 1989/90 in order to report on their study experience abroad (see point a) in 2.2.1).

#### **b) The Professional Value of ERASMUS Mobility Survey**

As part of the study “The Professional Value of ERASMUS Mobility” (VALERA), a major survey was conducted between September 2005 and February 2006 on students who went abroad in the framework of ERASMUS in the academic year 2000/01 (the VALERA study includes also surveys targeted to employers, teachers and university leaders). The main purpose of the VALERA study was to investigate the labour market situation of former ERASMUS students and to learn about study abroad conditions which might be conducive to a high professional impact. It was assumed that the majority of mobile students during the academic year 2000/01 had completed their studies and entered the labour market at the time of the survey. The response rate was 45% and 4,589 former ERASMUS participants completed the relevant questionnaire. Detailed information about this survey and the VALERA study can be found in Bracht et al. (2006).

Again, as stated earlier about student surveys only targeted to mobile students, a shortcoming of similar surveys addressed to graduates is that there is no control/comparison group, i.e. graduates who had not been mobile during their higher education studies. This means that one cannot compare the labour market situation of former mobile graduates with that of their former non-mobile peers. This makes it difficult to establish, for instance, whether studying abroad is associated with better employment prospects and higher income.

### **2.2.4 European surveys addressed to both mobile and non-mobile graduates**

#### **a) “Higher Education and Graduate Employment in Europe” survey and follow-up survey undertaken in the framework of the SOCRATES 2000 evaluation**

Data from two surveys have been combined together in an attempt to evaluate the labour market impact of participation in study abroad programmes. The first survey, “Higher Education and Graduate Employment in Europe”, was carried out for the CHEERS Project (Careers after Higher Education: A European Research Study). About 36,000 individuals who graduated in the academic years 1994/95 or 1995/96 from institutions across 12 countries were surveyed in 1999. In the framework of the SOCRATES Evaluation study, a follow-up survey was undertaken in 2000 among the respondents to the CHEERS graduate survey who reported having spent a study period in another European country during their studies. However, this second survey could only be sent to graduates of 5 countries. By merging information from the two surveys, it is possible to compare the early careers of three different groups: a) former ERASMUS students, b) other formerly mobile students and c) graduates who had not been internationally mobile during the course of their study (Jahr and Teichler, 2002).

## b) The REFLEX and HEGESCO projects

The REFLEX (Research into Employment and professional FLEXibility) project was carried out in 2005 and its primary aim was to investigate to what extent European higher education institutions are able to equip graduates with the skills and competencies needed by employers. As part of this project, a large-scale survey was carried out among about 70,000 graduates from higher education in 14 different countries. In each country, a representative sample has been drawn of graduates from ISCED 1997 5A programmes who successfully completed their studies in the academic year 1999/2000.

A similar project, HEGESCO (Higher Education as a GEnerator of Strategic COmpetences), was conducted in 2008 in 5 other European countries with a gross sample size of 30,000 graduates, finishing ISCED 1997 5A programmes in the academic year 2002/03. The empirical work that has been conducted as part of this project is compatible with the results of the REFLEX project, which enables a cross-country comparison of 19 European countries.

Respondents to both REFLEX and HEGESCO's surveys were asked whether they have spent any time abroad during higher education for study and, if yes, for how many months. This question captures different types of mobility experiences including getting credits for the degree programme (e.g. ERASMUS and other international student exchange agreements) as well as participation in language courses or summer schools. It is important to note that respondents received their higher education degree from their home country and hence one can safely exclude degree mobility.

Graduate surveys could also potentially underestimate the international student mobility rate. This is because there could be students who have participated in study abroad programmes but, after this experience, were unable to successfully complete their higher education studies.

### **2.2.5 European surveys addressed to both mobile and non-mobile students and graduates**

#### a) The ERASMUS Impact Study

The ERASMUS Impact Study (Brandenburg et al., 2014) employs a mixed-methods research approach that includes quantitative surveys targeted to different groups of individuals, higher education institutions and companies. A large-scale survey was addressed to both graduates (alumni) and students, distinguishing between those who were mobile and those who were not. Mobile individuals consist of former ERASMUS participants (in relation to studies, work, internship and placement) as well as those who have had other types of mobility experiences (e.g. participation in study abroad programmes other than ERASMUS, language courses abroad, etc.). A survey targeted to higher education institutions' academic and non-academic staff was also carried out. These surveys covered 56,733 students, 18,618 alumni, 4,986 staff members, 964 higher education institutions and 652 employers across 34 European countries.

#### b) The ERASMUS+ Higher Education Impact Study

The ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) was conducted by CHE Consult and ICF Consulting between January 2017 and April 2019. It was a follow-up project to the ERASMUS Impact Study (see point a) above) given that its goal was to evaluate the impact of ERASMUS+ mobilities on staff, students and higher education institutions. As in the ERASMUS Impact Study, several surveys targeted to different groups of beneficiaries of the ERASMUS+ programme and comparison groups were carried out. As regard students and graduates, these surveys addressed the following individuals:

- students who were about to start their mobility experience (two weeks or less before it starts)
- students returning from their mobility experience
- graduates who participated in ERASMUS+ or in its predecessor ERASMUS programme
- students selected to take part in ERASMUS+ but yet more than 3 months before departure
- students and graduates participating in mobility programmes other than ERASMUS+
- students and graduates who were not mobile.

A relevant difference with the majority of previous ERASMUS surveys is that there is a longitudinal element. Where possible, the same individuals were surveyed twice or even three-times. For instance, an ERASMUS participant can be interviewed just before going abroad as well as after his/her mobility experience. As part of this study, surveys were also conducted among staff, higher education institutions and strategic partners coordinators. Almost 77,000 responses, including from around 47,000 ERASMUS+ students, 12,000 graduates and 10,000 staff members with ERASMUS+ experience were analysed. This study covered 33 countries.

Next, we look at national surveys. They target students or graduates and cover both mobile and non-mobile students/graduates.

### 2.2.6 National student surveys addressed to both mobile and non-mobile students

Table 2 reports information about national student surveys that include data on international student mobility. Specifically, for each survey the following information is provided: country covered by the survey, institution that carried out the survey, details about the targeted population and references to relevant studies using data from the survey. We found that relevant surveys exist in France, Italy and Germany. While in Germany and France they directly address tertiary students, this is not the case for Italy. Participants in the Italian survey are upper secondary school leavers who are interviewed 3 or 4 years after the end of their studies. Given that university enrolment is one of the possible destinations of recent upper secondary school leavers, this survey contains information on a large number of university students. It is also interesting to note that these surveys differ with respect to the available information on study abroad. For instance, while the Italian survey collects only data related to participation in one type of study abroad option (i.e. credit mobility study/training period), in the German survey it is possible to distinguish other forms of short-term mobility that include, for instance, language courses, fieldwork and summer schools. In a recent paper, Di Pietro (2020) attempts to conduct a comparative analysis on social inequality in access to study abroad programmes using data from all the three aforementioned national student surveys.

Table 2: National student surveys including question/s related to participation in international student mobility programmes during higher education

<i>Country</i>	<i>Name of the survey</i>	<i>Institution carrying out the survey</i>	<i>Specific targeted population</i>	<i>Relevant studies employing data from the survey</i>
France	<i>Enquête conditions de vie des étudiants</i> (Survey on students' living conditions)	National Observatory of Student Life (OVE)	Students enrolled at French higher education institutions in a given year	Di Pietro and Page (2008)  Di Pietro (2020)
Italy	<i>Indagine sui percorsi di studio e di lavoro dei diplomati</i> (Survey on upper secondary school leavers' employment and study pathways)	Italian National Statistical Institute (ISTAT)	Upper secondary school leavers are surveyed 3 or 4 years after completion of their studies. Given that one of the possible destinations of upper secondary school leavers is university enrolment, this survey includes information on a large number of university students	Di Pietro and Page (2008)  Di Pietro (2020)
Germany	<i>Sozialerhebung</i> (Social Survey)	German Centre for Higher Education Research and Science Studies (DZHW)	Students enrolled at German higher education institutions in a specific year	Netz and Finger (2016)  Di Pietro (2020)

### 2.2.7 National graduate surveys addressed to both mobile and non-mobile students

Table 3 reports information about national graduate surveys where it is possible to identify those graduates who have had a study abroad experience during the course of their degree. Specifically, for each survey the following information is provided: country covered by the survey, institution that carried out the survey, details about the targeted population and references to relevant studies using data from the survey. In two cases (i.e. Italy- AlmaLaurea and the UK), in order to construct the suitable dataset, the graduate survey has been matched with administrative records. While the graduate survey collects information about the employment status of the graduate following completion of his/her studies, his/her previous higher educational records (including participation or non-participation in study abroad programmes) are provided by administrative sources. Comparing Table 3 with Table 2, one may observe that information on study abroad seems to be more often included in national graduate surveys than in national student surveys (although this result may be driven by the fact that national graduate surveys are more likely to be conducted than national student surveys). This is, however, not surprising given that graduate surveys can be used to study issues related to participation in study abroad programmes as well as issues related to the impact of studying abroad on labour market outcomes. On the other hand, student surveys can only be employed to investigate the former issue. Moreover, one should also note that national graduate surveys are not comparable as they look at the situation of graduates using a different time frame, e.g. 6 months after graduation in the UK as opposed to 5 years following graduation in Spain. Finally, it is important to observe that while some national graduate surveys are cross-sectional surveys (e.g. Italy), others are longitudinal surveys (e.g. Germany). While in the former graduates are observed at a single point in time (e.g. 1 year after graduation in Italy-ISTAT), in the latter the same graduates are surveyed over different time periods (e.g. 1 and 5 years after graduation in the German Panel Graduate Survey).

Table 3: National graduate surveys including question/s related to participation in international student mobility programmes during university studies

<i>Country</i>	<i>Name of the survey (administrative records)</i>	<i>Institution carrying out the survey</i>	<i>Specific targeted population</i>	<i>Relevant studies employing data from the survey/s</i>
Germany	Panel Graduate Survey	German Centre for Higher Education Research and Science Studies (DZHW)	Graduates who completed their undergraduate studies during a given academic year at any higher education institution in Germany are surveyed at about 1 and 5 years after graduation.	Parey and Waldinger (2011)  Kratz and Netz (2018)
Germany	Bavarian regional graduate survey (BAP)	Bavarian State Institute for Higher Education Research and Planning (IHF)	Graduates from all public higher education institutions in the German federal state of Bavaria are interviewed about 1.5 years and 6.5 years after graduation	Kratz and Netz (2018)
Italy	Inserimento professionale dei laureati (Survey on University to Work Transition)	Italian National Statistical Institute (ISTAT)	Graduates from Italian universities in a specific year are interviewed 3 years after completing their studies.	Di Pietro (2012 and 2015)  Schnepf and D'Hombres (2018)

Italy	Profilo dei laureati (Graduates' profile) and Condizione Occupazionale dei laureati (Graduates' occupational status)	Almalaurea (a consortium of Italian universities collecting information about graduates)	These surveys target recent graduates from universities that are part of Almalaurea. Respondents are contacted just before graduation and then 3 and 5 years after graduation.	Sorrenti (2017)
Spain	Encuesta de Inserción Laboral de Titulados Universitarios (Labour Insertion Survey of University Graduates)	Spanish National Statistical Institute (INE)	Graduates from Spanish universities in a given year are contacted about 5 years following their graduation.	Iriondo (2020)
Poland	Nationwide tracer survey of Polish graduates	Central Statistical Office of Poland (GUS)	Individuals successfully completing higher education in Poland during a specific period of time are tracked 3 years after graduation.	Liwiński (2019a and 2019b)
Switzerland	Swiss university graduate survey		Graduates are contacted approximately 1 year after completion of their studies.	Messer and Wolter (2007)
UK	HESA Destinations of Leavers from Higher Education Record and HESA Destinations of Leavers from Higher Education Longitudinal Record	Higher Education Statistical Agency (HESA)	All graduates are contacted 6 months after graduation and then again approximately 3 years following completion of their studies.	Schnepf and D'Hombres (2018)
The Netherlands	Elsevier/SEO survey		Recent graduates from Dutch tertiary education institutions in a given year are interviewed with a focus on outcomes in the first 20 months in the labour market	van Ophem et al. (2011)

## 3 Indicators

### 3.1 Existing indicators on participation in study abroad programmes

Participation in study abroad programmes is measured in absolute numbers (e.g. total number of students from a specific country (or from the EU) who studied abroad in a given (academic) year or total number of graduates in a given (academic) year from a specific country (or from the EU) who have had a study abroad experience during their studies) or as a rate (e.g. percentage of students from a specific country (or from the EU) who studied abroad in a given (academic) year or percentage of graduates in a given (academic) year from a specific country (or from the EU) who have had a study abroad experience during their studies).

#### Box 8. Intention to study abroad

Another way of looking at who are the students taking part in study abroad programmes is to consider intention to study abroad rather than actual participation. Both high school leavers (Lörz et al, 2016) and higher education students (Petzold and Tamara, 2015) can be asked whether they plan to be studying abroad. Intent to study abroad is found to be closely associated with study abroad participation (Lingo, 2019).

There exist many indicators related to different aspects of participation in study abroad programmes. More precisely, they refer to:

#### a) gender

EUROSTAT reports the number of credit mobile graduates (at least 3 months abroad) by several characteristics including gender

([http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ\\_uae\\_mobc01&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uae_mobc01&lang=en)).

The European Commission supplies figures about the gender balance in the ERASMUS/ERASMUS+ programme. The proportion of female participants is reported (see, for instance, European Commission (2015) on page 7).

Most works on study abroad, which are based on survey data, report the descriptive statistics of the final sample. These statistics very often include information on gender. For instance, looking at cross-country surveys, the ERASMUS Impact Study (Brandenburg et al., 2014) shows, for each group of respondents, the proportion of women by study abroad programme participation status, type of mobility, and type of programme among both students and alumni (see Table 2-6 on page 33).

#### b) type of mobility

EUROSTAT reports the number of credit mobile graduates (at least 3 months abroad) by several characteristics including the type of mobility

([http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ\\_uae\\_mobc01&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uae_mobc01&lang=en)). There are three options as regards the type of mobility: study period, work placement and study period combined with work placement.

Similar statistics are included in the 2019 edition of Education at Glance (OECD, 2019). It is reported the share of credit mobile graduates (at least 3 months or 15 ECTS credits) by mobility scheme and type of mobility (two options are given: study period or study period combined with work placement and work placement) (see Table B6.a on page 237).

The ERASMUS Impact Study (Brandenburg et al., 2014) reports information related to the type of mobility among the students and the alumni included in its sample (see Figures 2-4 and 2-5 on pages 38 and 39, respectively). Several options are provided. While some of them refer to credit mobility (study period and internship/traineeship/work placement), others to other forms of short-term mobility (e.g. language courses, summer schools). Information on type of mobility is also given in the ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019). However, such information is only reported for survey participants who had completed an ERASMUS+ mobility period (Figure 11 on page 48).

The European Commission provides also figures concerning the type of mobility related to ERASMUS/ERASMUS+ with two options given: studies and work placements (traineeships). The total number of students is reported (see, for instance, European Commission (2015) on page 17).

Finally, the Eurostudent survey supplies data in relation to the type of mobility experienced by credit mobile students. It distinguishes among: enrolment, internship/work placement, enrolment and internship/work placement, and other types of study-related activity abroad (the share of students is reported, see Figure B10.1 on page 223 in Hauschildt et al., 2018).

c) type of programme (or scheme)

EUROSTAT reports the number of credit mobile graduates (at least 3 months abroad) by several characteristics including the type of programme ([http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ\\_uae\\_mobc01&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uae_mobc01&lang=en)). There are three options as regards the type of programme: EU programmes (i.e. ERASMUS or other EU programmes), other international/national programmes and other programmes.

Similar statistics are included in the 2019 edition of Education at Glance (OECD, 2019), but instead of reporting the absolute number of credit mobile graduates, they show the share of credit mobile graduates (with the same options for type of programme as EUROSTAT) (see Table B6.a on page 237).

The fourth round of Eurostudent survey (Orr et al., 2011) reports: a) the students who have been enrolled abroad with ERASMUS as a share of all students who have been abroad and b) the students who have been enrolled abroad without a programme as a share of all students who have been abroad (Figure 10.11 on page 185). The fifth round (Hauschildt et al., 2015) provides a similar measure, but this time there is a distinction between EU programmes, other programmes and no programme (Figure 10.5 on page 198). The sixth round (Hauschildt et al., 2018) employs the same indicator as the fifth round, but the option 'no programme' is here called 'independently organised' (Figure B 10.5 on page 229).

d) country of origin (or country of home institution)

The European Commission collects information on the country of origin of ERASMUS students. It typically reports the total number of participants by country of home institution (see, for instance, Annex 1 in European Commission, 2009).

The Eurostudent survey also provides data related to the country of origin of students venturing across national borders for the purpose of study-related stays. However, only in recent rounds (i.e. from the third round onwards) these data refer just to credit mobile students (see, for instance, Figure B10.1 on page 223 in Hauschildt et al., 2018). The share of students studying abroad from a given country is reported.

e) country of destination (or country of the host institution)

The European Commission releases data on the country of destination of ERASMUS students. It often publishes tables showing the total number of incoming and outgoing ERASMUS students by EU country (see, for instance, Annex 2 from European Commission, 2009).

The ERASMUS Impact Study (Brandenburg et al., 2014) reports information on the country of destination of the mobile students that make up the sample used in this work.

f) institution of origin and of destination

The European Commission (2014d) has published the list of the top 100 higher education institutions receiving ERASMUS students from abroad (Annex 3) as well as the list of the top 100 higher education institutions sending ERASMUS students abroad (Annex 4). They refer to the academic year 2012/13.

g) socio-economic background/disadvantaged status

Socio-economic background can be measured through: parental income, parental occupation (highest occupation of the parents) and parental education (highest educational attainment of the parents). Most studies have looked at the degree of social inclusiveness of study abroad programmes using parental education as a proxy for family background. However, measures based on parental income, parental occupation or a combination of both have also been used.

The first round of the Eurostudent survey (HIS, 2002) reports the proportion of participants in foreign study-related stays<sup>10</sup> across students from low-income families and students from high-income families (Figure 54 on page 115). However, this indicator is no longer reported in the successive rounds of the survey, which instead employ parental education to define family background. The second round of Eurostudent survey (HIS, 2005) reports the proportion of students who participated in study-related activities abroad<sup>11</sup> among those whose parents' highest educational attainment is lower secondary education (low education) and those whose parents' highest educational attainment is higher education (high education) (Figure 48 on page 156). The third (Orr et al., 2008) and fourth (Orr et al., 2011) rounds report the same measure, but this time only for students who were temporarily enrolled at a foreign higher education institution (credit mobility study period) (Figure 8.8. on page 139 in the third round and Figure 10.4 on page 174 in the fourth round<sup>12</sup>). In the fifth (Hauschildt et al., 2015) and sixth (Hauschildt et al., 2018) rounds, data are provided again only for short-term academic stay, but the distinction is now between students who have at least one of their parents with a higher education degree versus those who do not (Figure 10.2 on page 193 in the fifth round and Figure B10.2 on page 226 in the sixth round). Additionally, in the fifth round these measures are also reported across students who have not been abroad yet but are planning to do so in the future. In the sixth round the same indicator is provided for students who have undertaken an internship or work placement abroad (B10.3 on page 227). To sum up, although the Eurostudent survey is a valuable data source for analysing the degree of social inclusiveness of study abroad programmes, different measures have been employed in different rounds and this undermines the comparability of the results over time (even though, for instance, indicators provided in the fifth and sixth rounds can be compared).

The ERASMUS Impact Study (Brandenburg et al., 2014) also uses parental education to look at the socio-economic background of students and alumni included in the final sample. Respondents are split into two categories, depending on whether their parents had attended university (Table 2-11 on page 38- results are provided in percentage terms). The ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) employs the same indicator when examining the social origin of former ERASMUS+ participants (Figure 7 on page 44).

Di Pietro (2020) and Netz and Finger (2016) also use an indicator based on parental education to define students' socio-economic background. Schnepf and Colagrossi (2020) defines students' social class combining information on both parental education and occupation.

Using data from a survey conducted in different countries in the academic years 1997/98 (see d) in 2.2.1) and 2004/05 (see e) in 2.2.1)<sup>13</sup>, Souto Otero (2008) looks at changes in the socio-economic background of students who participated in the ERASMUS programme. He uses the proportion of participants who had at least one parent working in executive, professional or technical occupations as a proxy for students from more advantaged backgrounds.

Finally, it is interesting to note that the ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) reports survey participants who had completed an ERASMUS+ mobility period by disadvantage status (which includes, for instance, coming from remote, deprived or underserved regions, having a minority background or having serious health problems) (Figure 8 on page 45).

#### h) field of study

The second round of Eurostudent survey (HIS, 2005) reports the proportion of students who were internationally mobile<sup>14</sup> by field of study. The two fields of study considered are: humanities and arts, and engineering (Figure 45 on page 150). Similar figures are provided by the third round (Orr et al., 2008), though the category of 'engineering' includes also manufacturing and construction (Figure 8.7 on page 138). In the fourth round (Orr et al., 2011) the same classification of field of study is used, but the relevant indicator focuses on study abroad (credit mobility) and refers to both students who have been enrolled abroad as well as those who have not been enrolled abroad yet but plan to do so (Figure 10.3 on page 72). The fifth round (Hauschildt et al., 2015) provides similar figures as the fourth round but adds a third field of study, i.e. teacher training and education science (Figure 10.3 on page 195).

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<sup>10</sup> Please note that foreign study-related stays include forms of short-term mobility that are not comprised in the category of credit mobility (e.g. language courses)

<sup>11</sup> Again, other forms of international mobility in addition to credit mobility are included.

<sup>12</sup> In this round, students from low socio-economic background are those whose parents' highest educational attainment is ISCED 0-2, whereas the corresponding figure for those from high status is ISCED 5-6.

<sup>13</sup> Please note that there are some comparability problems between the two surveys in terms, for instance, of modes of data collection and number of participating countries.

<sup>14</sup> Not only credit mobile students are considered, but also those who had other forms of short-term mobility (e.g. language courses).

The ERASMUS Impact Study (Brandenburg et al., 2014) reports information on field of study among the respondents of the survey targeted to students and alumni. Compared with the Eurostudent survey, a much more disaggregated classification of field of study is employed (Table 2-5 on page 36). The ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) provides similar figures for the former ERASMUS+ participants, but considers a smaller number of fields of study compared with the previous study, 10 versus 15 (Figure 10 on page 47).

Many studies on study abroad, which rely on national survey data, report descriptive statistics of the final sample that include information on subject of study (see, for instance, Di Pietro, 2020).

i) year of study (or stage of study career)

The first round of the Eurostudent survey (HIS, 2002) displays information on when students complete study-related stays abroad<sup>15</sup>. Two options are given: at the beginning of the studies or towards the end of them (Figure 52 on page 113- data are expressed in percentage of those students who studied abroad). Similar data are given in the second round (HIS, 2005), but a third option has been added, i.e. 'in the middle' (Figure 46 on page 152). More detailed information is supplied in the third round (Orr et al., 2008) as it is reported the year of study (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, etc.) during which students went abroad (Figure 8.6 on page 136). It is unfortunate, however, that none of these data refer specifically to credit mobility (study abroad) students.

j) length of their stay

Using the UOE database, statistics on the share of credit-mobile graduates by length of their stay have been published in the 2019 edition of Education at Glance (OECD, 2019). It is distinguished between students who were abroad for less than 3 months (or 15 ECTS credits) and those who were abroad for more than 3 months (Table B6.a on page 237).

Data on the average duration (in months) of the study abroad experience through ERASMUS/ERASMUS+ programme (by type of mobility) are provided by the European Commission (see, for instance, European Commission, 2015, on page 7).

k) age

The European Commission supplies data about the average age at which students studied abroad through the ERASMUS/ERASMUS+ programme (see, for instance, European Commission, 2012, on page 5). Information is broken down by type of mobility.

l) grant status

The European Commission reports the number of those students who went abroad thanks to the ERASMUS/ERASMUS+ but received no grant. They are called 'zero grant students' (see, for instance, European Commission, 2012, on page 5). Information is broken down by type of mobility. Given that the total number of ERASMUS/ERASMUS+ students is also provided, one can easily work out the proportion of those students who did not receive a grant.

### **Box 9. Barriers to participation to study abroad programmes**

Several surveys targeted to both mobile and non-mobile students (e.g. fourth and fifth rounds of the Eurostudent survey) include a section on obstacles to participation in study abroad programmes. Students who have not had a credit mobile experience are asked about the factors deterring them from doing so. These factors typically refer to the following issues: financial difficulties, personal problems (e.g. separation from the partner, children and friends), insufficient foreign language skills, lack of information, expected difficulties in credit recognition and expected delay in the progress of studies.

<sup>15</sup> Not only credit mobility experiences are included.

### **Box 10. Participation in study abroad programmes and sample selection bias**

Many empirical studies investigate the student's probability of participating in study abroad programmes using univariate logit or probit models from samples of students (e.g. Di Pietro and Page, 2008). However, the results from these studies may suffer from a sample selection problem as they ignore the role of the university enrolment decision. University students may be a non-random subsample of high school leavers and the origin of this selection is likely to be related to omitted individual characteristics (e.g. unobserved ability, motivation) that affect not only the decision to enrol at university but, conditional on enrolment, also that to study abroad. There is a large consensus in the economics literature that omission of selection decisions translates into omitted variable misspecification, yielding biased results (Mohanty, 2001).

### **3.2 Proposals for new indicators on participation in study abroad programmes**

Although, as reported above, there are already several measures related to participation in study abroad programmes, the following proposed indicators capture dimensions that perhaps have been overlooked or under-explored. Specifically, it would be helpful to break participation in study abroad programmes down by:

#### a) type of upper secondary school attended

In contrast to vocational schools, academically oriented ones offer a curriculum and learning opportunities that not only increase students' chances of successfully completing university education, but they are also more conducive to studying abroad (Lörz et al., 2016). They provide, for instance, better opportunities to learn foreign languages, whereas lack of foreign languages skills is often considered to be an important barrier to international student mobility. Büchner (2004) gives some evidence that in Germany Gymnasium students are more likely to take part in study abroad programmes, particularly those whose parents have high levels of education and income.

#### b) grant status and socio-economic background

This indicator would allow us to understand to what extent students from less advantaged backgrounds receive a grant to study abroad. These students frequently report that they are unable to participate in study abroad programmes due to financial problems. On the other hand, however, study abroad grants/scholarships are often allocated on the basis of academic merit and students from higher socio-economic status tend to have higher academic ability than their peers from lower socio-economic status.

#### c) educational stays abroad prior to higher education

The link between participation in study abroad programmes and education-relevant stays abroad completed before entering higher education (e.g. language courses) has been relatively overlooked in European surveys. The first round of the Eurostudent survey (HIS, 2002) shows the proportion of students with international education experience gained prior to higher education. However, this information is not reported in the successive rounds of the survey.

### **3.3 Existing indicators on the labour market effects of studying abroad**

Indicators on the impact of studying abroad on labour market outcomes are based on survey data (especially from European and national graduate surveys). They look at:

#### a) Employment

A few studies analyse the effect of studying abroad on the probability of being in employment. An employment model is estimated (the dependent variable is a binary indicator whether the individual has a job or not) in which the main independent variable is a dummy variable for having, or not having studied abroad. These studies differ with respect to when the employment status is examined and if such status is observed at one or more points in time. Di Pietro (2015) looks at the situation of Italian graduates 3 years after completion of their studies, whereas the corresponding figure for Spanish graduates in the study by Iriundo (2019) is 5 years. Other works analyse how the difference in employment status between mobile and non-mobile graduates changes as more time passes since graduation (e.g. Liwiński, 2019a). Another difference lies in whether the employment status is *self*-identified by the survey respondent (e.g. Di Pietro, 2015; Schnepf and D'Hombres, 2018) or it comes from administrative sources (for instance, in the paper by Iriundo

(2020) the employment indicator shows whether the graduate was affiliated to the Social Security on at least one day in March each year, between 2011 and 2014).

The ERASMUS Impact Study (Brandenburg et al., 2014) and the ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) provide several figures on the difference in employment (unemployment) rate between mobile (ERASMUS(+)) and non-mobile graduates at several points in time after graduation.

Bracht et al. (2006) report the proportion of ERASMUS students of the academic years 1988/89 (see point a) in 2.2.1. and point a) in 2.2.3) and 2000/01 (see point b) in 2.2.4) who are employed/self-employed following graduation<sup>16</sup>. They also report similar figures for ERASMUS graduates and non-mobile graduates in the academic year 1994/95<sup>17</sup> (Table 31 on page 70).

#### b) Wages

Several studies estimate a wage equation<sup>18</sup> including a dummy variable for having, or not having studied abroad among the explanatory factors. These studies use different earnings measures. Some of them employ gross hourly wage (e.g. Kratz and Netz, 2018; Rodrigues, 2013), while others use net hourly wage (e.g. Liwiński, 2019b). In a few studies it is unclear whether gross or net wage is used (e.g. Messer and Wolter, 2007; Jacob et al., 2019). Another difference regards the fact that individuals' earnings are measured at different points in their professional careers. Liwiński (2019b) utilizes the wage rate earned by graduates in the first job after successfully completing higher education. van Ophem et al. (2011) employ the starting wage in the present job. Jacob et al. (2019) and Rodrigues (2013) use the current salary (5 years after graduation). Iriondo (2020) employs the median of the quintiles of Social Security contribution payments in March each year (between 1 and 4 years after graduation).

#### c) Working abroad

Parey and Waldinger (2011) study the effect of studying abroad on international labour market mobility later in life for German university graduates. They focus only on former ERASMUS participants and their measure is a dummy variable indicating whether or not the graduate works abroad. Di Pietro (2012) carries out a similar exercise for Italian graduates but looks at the effect of participation in all types of study abroad programmes.

Rodrigues (2013) examines the association between student mobility and the probability of being mobile after graduation and how this association varies by time spent abroad. Specifically, two binary indicators are used: whether or not the first job after graduation was in a different country from that of graduation and whether or not the graduate lives abroad 5 years following graduation.

The ERASMUS Impact Study (Brandenburg et al., 2014) shows how the percentage of those who moved abroad for their current job changes across mobile and non-mobile graduates (Table 3-19 on page 117). Similarly, the ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) reports the proportion of individuals working in a country different from that of origin across both mobile and non-mobile graduates (Figure 71 on page 98).

Bracht et al. (2006) report the proportion of ERASMUS students of the academic years 1988/89 (see point a) in 2.2.1 and point a) in 2.2.3) and 2000/01 (see point b) in 2.2.4) who are employed abroad following graduation. They also report similar figures for ERASMUS graduates and non-mobile graduates in the academic year 1994/95 (Table 38 on page 75).

#### d) Occupational status

Jacob et al. (2019) study the effect of studying abroad on the probability of working in the upper service class based on the EGP class schema (Erikson and Goldthorpe, 1992) as adapted by Güveli (2006). Similarly, Schnepf and D'Hombres (2018) analyse the impact of studying abroad on the probability of taking up a professional or managerial position 6 months and 3 years after graduation in the UK. Using ALWA data, Waibel et al. (2018) test whether German higher education graduates who did or did not study abroad during the course of their studies differ in occupational status based on International Socio-Economic Index (ISEI; see Ganzeboom and Treiman, 1996) 3 years after graduation.

The ERASMUS Impact Study (Brandenburg et al., 2014) looks at difference in the occupational status attained by ERASMUS alumni and non-mobile alumni. Four different options are provided: no management position, low management position, middle management position, and chief executive (Figure 3-34 on page 124).

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<sup>16</sup> ERASMUS students in the academic years 1988/89 and 2000/01 are surveyed in 1993 and 2005, respectively.

<sup>17</sup> ERASMUS graduates and non-mobile graduates in the academic year 1994/95 are surveyed in 2000.

<sup>18</sup> Specifically, a Mincer earnings function is typically estimated where the dependent variable is the logarithm of wage.

e) Quality of the job

The ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) makes a comparison between working ERASMUS(+) graduates and working non-mobile graduates based on a Job Quality Index that takes into account a number of positive job characteristics including social recognition and status and opportunity to grow professionally (Figure 66 on page 95).

f) Time taken to find the first job after graduation

Rodrigues (2013) looks at whether there is a relationship between having studied abroad during higher education and the time taken by graduates to find their first job (in months). She also investigates the extent to which this relationship varies by time spent abroad.

The ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) also compares mobile (ERASMUS(+)) and non-mobile graduates in terms of time taken to find the first job (6 options are given: less than 3 months, up to 6 months, up to 12 months, up to 18 months, up to 2 years, and more than 2 years- Figure 63 on page 92).

Table 19 (on page 60) in Bracht et al. (2006) shows statistics on the average duration (in months) of the job search period by field of study for the ERASMUS students of the academic year 2000/01 (surveyed in 2005- see point b) in 2.2.4).

g) job turnover

The ERASMUS Impact Study (Brandenburg et al., 2014) looks at whether former study abroad programme participants are more likely to change employer relative to their non-mobile peers (Figure 3-39 on page 127).

Bracht et al. (2006) show the number of employers changed by ERASMUS students of the academic year 2000/01 (surveyed in 2005- see point b) in 2.2.4.) since graduation (Table 16 on page 59).

h) degree of internationalisation of the current job

The ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) compares working ERASMUS(+) graduates with their non-mobile peers based on an International Job Index that considers several international job characteristics including, for instance, part of the staff is from abroad, customers abroad and cooperation with branches abroad (Figure 67 on page 95). A similar exercise is also carried out by the ERASMUS Impact Study (Brandenburg et al., 2014) (Table 3-19 on page 117).

Bracht et al. (2006) show the proportion of ERASMUS students of the academic year 2000/01 (surveyed in 2005 see point b) in 2.2.4) who report that their company/organisation frequently undertakes business or has contact to other countries. It is also looked at whether these activities are frequent with the host country of their study period abroad (Table 34 on page 72).

i) change of position within a company

The ERASMUS Impact Study (Brandenburg et al., 2014) investigates if there any differences between mobile and non-mobile alumni in terms of changing positions within a company (Figure 3-40 on page 128).

j) job satisfaction

Bracht et al. (2006) look at the extent to which ERASMUS students of the academic year 2000/01 (surveyed in 2005 see point b) in 2.2.4) are satisfied with their current job (Table 27 on page 67).

k) permanent contract

Bracht et al. (2006) investigate the proportion of ERASMUS students of the academic year 2000/01 (surveyed in 2005 see point b) in 2.2.4) whose current job is permanent (and/or whose first job was permanent) by field of study (Figure 13 on page 58).

l) full-time employment

Bracht et al. (2006) examine the percentage of ERASMUS students of the academic year 2000/01 (surveyed in 2005 see point b) in 2.2.4.) who have a full-time job (and/or whose first job was full-time) by field of study (Figure 14 on page 58).

### **3.4 Proposals for new indicators on the labour market effects of studying abroad**

As illustrated above, there are already many indicators attempting to measure the effect of participation in study abroad programmes on the early career of graduates. They look not only at the employment status, but also at several issues related to the quality of the jobs held by graduates as well as at other dimensions such as, for instance, international labour mobility. Taking the existing indicators into account, the following ones are proposed:

#### a) job search methods

It would be interesting to investigate if there are any differences in terms of job search methods between graduates who had a study abroad experience during their studies and those who did not. For instance, on the one hand, former study abroad participants have the advantage that they may rely on an international network of friends and contacts made while being abroad. On the other hand, however, they may find it harder to create and maintain social connections in their home country while being abroad.

#### b) vertical mismatch

Vertical mismatch is an important indicator measuring the extent to which the graduate works in a job for which a lower level of education is required than actually obtained. Both subjective and objective indicators can be used to measure vertical mismatch. Graduates may be asked to compare their level of education with the one they consider to be appropriate to carry out their job tasks, e.g. "With respect to your current job, do you feel that having a higher education degree is excessive, adequate or insufficient?". Alternatively, one may inquire whether a higher education degree was formally required to obtain the graduate's current job. Recording the incidence of vertical mismatch (by field of study) among mobile and non-mobile graduates may be useful as it would give us an idea of whether the skills and knowledge acquired by students while being abroad make them less likely to be vertically mismatched once they complete their studies and enter the labour market.

#### c) horizontal mismatch

Horizontal mismatch refers to a situation in which the graduate has an occupation in a different field from the one he/she has been trained. Both subjective and objective indicators can be used to measure horizontal mismatch. Graduates may be asked to compare their field of study with the field of their occupation, e.g. "to what extent is your current job related the study field of your higher education degree?". Alternatively, an objective evaluation can be performed where experts identify the field of study congruent with the requirements for each job. Again, it would be interesting to find out if the incidence of horizontal mismatch (by field of study) differs across mobile and non-mobile graduates.

### **3.5 Existing indicators on the non-labour market effects of studying abroad**

Analysing the effect of participation in study abroad programmes in areas outside the labour market has gained increased interest in recent years. However, the number of studies in this field that employ internationally or nationally representative samples is still relatively limited. In fact, the majority of works on the impact of studying abroad on non-labour market outcomes are based on small samples of students/graduates from a single institution located in a specific country. The following non-labour market outcomes have been analysed:

#### a) European identity

The ERASMUS Impact Study (Brandenburg et al., 2014) examines how non-mobile and mobile (before the mobility experience) students differ in terms of their relationship with Europe. It also studies whether having studied abroad changes students' perception of Europe (Table 3.21 on page 130) and whether the effect varies across different types of ERASMUS actions (Table 3.23 on page 131).

In the ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) ERASMUS+ participants are asked before they start their mobility experience about their European identity and their feelings about Europe and the European Union (Figure 78 on page 103 and Figure 79 on page 104). A European identity index is also constructed and different groups of survey respondents (mobile students, ERASMUS+ participants, non-mobile students) are scored against it (Figure 81 on page 106). Additionally, it is looked at how this index varies across regions (Figure 82 on page 106) and depending on the characteristics of the countries of origin and destination for study abroad participants (Table 15 on page 110).

Similarly, Van Mol (2013 and 2018) uses survey data from several European countries in order to study whether participation in study abroad programmes fosters a sense of European identity among its participants. Employing data from a survey of more than 2,000 respondents from 25 EU countries, Mitchell (2012) shows that participation in the ERASMUS programme makes students more likely to identify themselves as Europeans.

b) postgraduate studies

Schnepf and D'Hombres (2018) look at the effect of participation in study abroad programmes on the probability of taking up postgraduate studies in Italy. A similar analysis is carried out by Messer and Wolter (2007) in Switzerland.

c) international partner

The ERASMUS Impact Study (Brandenburg et al., 2014) analyses the extent to which mobile graduates are more likely to be in a relationship with a person of a different nationality compared with non-mobile graduates (Figure 3-43 on page 135).

d) personality traits

The survey accompanying the ERASMUS Impact Study (Brandenburg et al., 2014) contains a psychometric-related questionnaire, consisting of 49 items and referring to the following 6 memo© factors: confidence, curiosity, decisiveness, serenity, tolerance of ambiguity and vigour. Study abroad participants were asked to complete this questionnaire before and after their international experience (Table 3-6 on page 81). A similar exercise is also carried out by the ERASMUS+ Higher Education Impact Study<sup>19</sup> (Souto-Otero et al., 2019). It is important to note that the aforementioned Impact Studies are not the first ones to explore this area. There are in fact a few earlier studies, though based on relatively small and non-nationally representative samples, attempting to investigate how studying abroad affects the so-called “big five” personality traits (extraversion, conscientiousness, openness, agreeableness and neuroticism) (see, for instance, Zimmermann and Neyer, 2013). Finally, one should also observe that the memo© factors are found to be closely related to employment outcomes and career success (Souto-Otero et al., 2019).

e) clarity about future study/professional career

Experiential learning theory suggests that a study abroad experience helps students gain clarity about their career goals. Such an experience has “intrinsic formative value” (Amit, 2010). Following this, the ERASMUS+ Higher Education Impact Study (Souto-Otero et al., 2019) looks at the proportion of former ERASMUS+ participants who have decided to re-orientate their studies after their study abroad experience (Figure 47 on page 79) and it also investigates to what extent such experience was instrumental in making them change their study pathways (Figure 48 on page 80). In a similar vein, it is also examined whether former ERASMUS+ participants perceive that after their stay abroad they have a better idea of what they want to do in the future (Figure 50 on page 81).

### **3.6 Proposals for new indicators on the non-labour market effects of studying abroad**

Even though studying abroad has been already associated with several non-labour market dimensions, it would be useful to develop indicators related to the following other aspects:

a) life satisfaction

Since, as stated above, studying abroad gives students the opportunity to grow personally by developing a greater sense of independence, by broadening their horizons and by gaining clarity about their career goals, it would be interesting to find out whether this experience actually leads to better life satisfaction.

b) inter-generational transmission of international student mobility

It would be intriguing to know the proportion of study abroad programme participants with at least one parent who had been mobile during his/her university years. There are several mechanisms through which formerly mobile parents may encourage their children to participate in study abroad programmes. These include financial channels (e.g. formerly mobile parents may be particularly eager to pay the costs of studying abroad for their children) as well as nurture channels (e.g. formerly mobile parents are likely to have travelled abroad a lot with their children, and this in turn may increase their willingness to undertake an international education

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<sup>19</sup> New items were included in the questionnaire and the methodology was further developed.

experience). Given that the ERASMUS programme started in 1987 and its size has increased over time, one would expect many of its former participants to have had children who are or soon will be in higher education.

c) civic outcomes

Given that an international education experience may improve students' openness to diversity and tolerance, one could investigate whether studying abroad is found to boost civic engagement (e.g. participation in community services and volunteer activities) and promote democratic values.

## **4 Conclusions**

There is a large consensus among policymakers and scholars that spending time abroad during university studies is highly beneficial to students in terms of their professional and personal development. In light of this conclusion, more and more resources have been devoted to support students wishing to study abroad. This trend is also expected to continue in the future. Given the significant investment in international student mobility programmes, there is a clear need to systematically monitor who studies abroad and what are the effects associated with studying abroad. The availability of appropriate data and indicators is essential to be able to do this.

This study has provided an overview of existing data related to study abroad at European and national level. These include administrative and survey data. Relevant surveys are typically addressed to students, graduates and both students and graduates. Existing data are mainly related to the following two broad areas: participation in study abroad programmes and the impact of studying abroad following graduation. Although some data are available since the mid-1980s, (e.g. the European Commission has been reporting the number of ERASMUS participants by country of origin and destination since 1987), there has been a tendency over the years to collect more detailed information on various aspects of international student mobility. Additionally, as regard European surveys specifically related to study abroad, their design and target have been changing over time in an attempt to better capture different dimensions of participation in international student mobility programmes and its effects. For instance, while the first surveys focused only on former study abroad participants, with the passing of time it has become clear the importance of collecting information on the entire student/graduate population. Comparing the outcomes between mobile and non-mobile students/graduates is, in fact, more informative. Longitudinal surveys also allow to see how the difference in outcomes between these two groups of individuals changes as the years since graduation increase. Finally, while earlier surveys looking at the effects of studying abroad focused exclusively on labour market performances, more recent surveys have broadened their scope by gathering information also on non-labour market outcomes (e.g. European identity, postgraduate studies, etc.).

One should also bear in mind that high-quality survey data are crucial in order to obtain reliable and accurate results. Although the size of the sample is an important factor, representativeness of the sample constitutes a critical component. This ensures that one can generalize the findings from the research sample to the overall target population. Another relevant element is that the response rate associated with key variables should not be low. Additionally, the survey should include information on the university attended by the respondent. This is of fundamental importance as it allows researchers to separate the effects exerted by university characteristics on study abroad participation and post-graduate labour market outcomes from the effect related to individual traits.

A comprehensive review of existing indicators on participation in study abroad programmes and its effects has been conducted in the second part of this study. More indicators covering various areas of international student mobility have been developed in the last 10/15 years, and this increase was driven by more and new relevant data becoming available. Only a few basic measures are, however, consistently available across countries over a long period of time. Nevertheless, in more recent years there has been an effort, especially from the European Commission, EUROSTAT and the UOE, to systematically collect European comparable data incorporating additional information related to study abroad. As regards participation in study abroad programmes, special attention should be given to those measures that are crucial to ensure that disadvantaged students are fairly and equitably treated. These students should be defined in broader terms taking into account their own traits (e.g. gender and disability), the characteristics of the family of origin (e.g. migration status, parental education, occupation and income) as well as dimensions related to the area of their residence (e.g. rural and deprived area). As far as the effect of participation in study abroad programmes on labour market outcomes is concerned, while traditional indicators focus on if and to what extent mobile graduates are more likely to be in employment than their non-mobile peers, more emphasis should be given to those measure investigating differences between these two groups of individuals in terms of the quality of the jobs held by them (e.g. occupational status, job satisfaction). The analysis of the impact of studying

abroad in areas outside the labour market has received a lot of attention in later years. In particular, it is interesting to develop indicators exploring whether participation in study abroad programmes is associated with personality changes, for instance, in the direction of feeling more confident and independent.

This study has also proposed several new indicators related to study abroad. They cover the areas of both participation in study abroad programmes and the effects of studying abroad on labour market and non-labour market outcomes after graduation. Such new measures look at dimensions that have been overlooked or under-explored by existing studies.

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**List of boxes**

**Box 1.** Degree mobility (or mobility for the whole degree programme).....5

**Box 2.** Other forms of credit mobility.....5

**Box 3.** Other forms of short-term mobility that are not part of credit mobility .....6

**Box 4.** Administrative data .....7

**Box 5.** Survey data.....8

**Box 6.** Graduate surveys .....8

**Box 7.** Student surveys .....9

**Box 8.** Intention to study abroad..... 17

**Box 9.** Barriers to participation in study abroad programmes..... 20

**Box 10.** Participation in study abroad programmes and sample selection bias ..... 21

**List of figures**

**Figure 1.** Survey data on international student mobility .....8

## List of tables

<b>Table 1.</b> Eurostudent survey.....	11
<b>Table 2.</b> National student surveys including question/s related to participation in international student mobility programmes during higher education .....	14
<b>Table 3.</b> National graduate surveys including question/s related to participation in international student mobility programmes during university studies .....	15-16

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