

London Calling: International students' contribution to Britain's economic growth



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Foreword

Immigration is a burning political issue. Through no fault of their own, international students are being pulled into this debate because they are included in the net migration target statistics so often quoted by politicians. As a result it can feel like they are on the receiving end of anti-immigration rhetoric. Yet these students help fund our education system by paying significant fees, contribute to our economy, become friends of Britain, share their cultures, and learn to appreciate our values. This report, for the first time, quantifies the positive effect of international students in London on our country and makes suggestions to future Governments about how to maximise their beneficial impact.

London has more world-class universities than any other city on the globe¹. Our many and varied institutions contribute to London's strong economic performance. They deliver ground-breaking research; they attract students whose social or ethnic backgrounds might otherwise have precluded them from higher education; and of course they provide high-quality teaching. More Londoners have graduate level qualifications as a percentage of the population (53%) than any other city².

Higher education generates nearly £11bn per annum in export earnings³. As the most popular city in the world for international students⁴, London hosts 40,000 from continental Europe and 67,000 from the rest of the world.

Much has been said in recent years about this influx of students - about the positive contribution that they make to London and the UK, but also the additional pressure that they put on a capital city that is growing by 100,000 people a year⁵. But this debate has taken place in the absence of hard data. We provide the data in this report.

Non-EU students are subject to immigration controls and as such are affected by changes that are made to the Government's immigration policy. Free movement of people is one of the core principles of the European Union, but we have no such principle governing the rest of the world. This report therefore focuses on the net contribution made to Britain by students from outside the EU.

1. Times Higher Education, World University Rankings 2014-15
2. London First, London 2036: An Agenda for Growth, January 2015
3. Universities UK, The Impact of Universities on the UK Economy, April 2014
4. World Cities Culture Report, December 2014
5. London First, London 2036: An Agenda for Growth, January 2015

In our analysis we use data from several sources, including the Higher Education Statistics Agency and a survey of international students from one quarter of London's universities, representative of the range of institutions in the capital.

The results are overwhelmingly positive:

- **London's international students bring a net benefit of £2.3 billion per annum to our economy** represented by £2.8 billion in fees and spending, less the £540 million cost of providing them with public services, including the NHS.
- International students **support nearly 70,000 jobs** in London because of the money they spend here.
- **60% of students including alumni said they are more likely to do business with the UK** as a result of studying here; they go home understanding our values and principles.
- And this benefit is not ours alone – the students themselves have benefited – **60% said that studying in London has improved their career prospects** either at home or in the UK.

But a proportion of students also reported negative experiences:

- More than **one third** of the students surveyed found that **Britain's immigration system**, particularly its complexity, negatively affected their experience of studying here. A vast majority of students also went on to comment about the difficulty of securing work in the UK after they had completed their studies.

This report shows we need to engage in proper debate about creating an immigration regime that welcomes those who contribute economically to our country.

A 2014 poll conducted by British Future⁶, the independent Think Tank, [International Students and the UK immigration debate], showed that only 22% of people think of international students as "immigrants". Furthermore, the vast majority (75%) would like the Government to allow international graduates to stay in the UK for a period of time after their degree.

6. British Future, International Students and the UK Immigration debate, August 2014

We have three specific asks of the Government:

- **Use hard data when setting immigration targets:** There's a real opportunity to develop better data collection on migration so that we can see the real facts on inward and outward flows.
- **Classify students as temporary visitors not migrants:** we should follow the lead of other countries such as Canada and Australia and stop classifying students as immigrants. They are here for a short time only and by choosing to study in the UK, they are contributing to jobs, growth and cultural understanding in this country. By classifying them as migrants and including them within the net migration target we are implying they are unwelcome.
- **Create an environment where British-educated overseas talent is valued as an asset rather than treated as a liability:** the Government should reinstate the automatic option or make it easier for international students to work here for a few years after graduation; this would be good for UK universities, good for UK business, and good for Britain's long-term relations with the global business community when these graduates return to their home countries.

By quantifying the impact of international students, we hope that this report will help politicians and policymakers maximise the contribution that universities and their students make to both London's and the UK's economic success.

Baroness Jo Valentine,
Chief Executive, London First

Julia Onslow-Cole,
Partner, Legal Markets Leader & Head of Global Immigration,
PwC Legal LLP

Executive Summary and Conclusions

The aim of the study is to quantify the economic costs and benefits of international students – those who come from outside of the European Union – at London's universities to both the London and wider UK economy. PwC and London First have undertaken this report with support from a quarter of London's universities. The intention is to get a clear, evidence based view of the net impact of these students and, in so doing, help politicians and policymakers in their development of the UK's immigration policy. The study looks at non-EU students only, since EU students are governed by the principle of freedom of movement and not subject to immigration controls.

The study measures the economic costs and benefits of international students both in the short term while studying in London – through their spending and that of visiting friends and relatives, their participation in the labour market and their use of public services including public transport – and the long term after they graduate, for example as they join the labour market in the UK.

Key findings

The scale of international students in London underlines their importance to Universities

- In 2013/14 there were 67,405 international students at London's universities; over one in five (22%) of the 310,195 international students across the UK study in London-based universities.
- 18% of the total student population in London universities (366,605) are international.
- Whilst domestic students in London fell over the last five years by over 40,000, international student numbers remained steady.
- These students are attracted to London for a number of reasons, including the reputation of London's universities, quality of education, English speaking education and London's status as a social and cultural centre.

International students are significant contributor to the UK economy

- International students contribute a total of £2.8 billion per annum to UK Gross Domestic Product (GDP) through the fees and spending that they, their friends and their families bring to the UK. This total contribution is broken down as follows:
 - £1.32 billion as a result of the fees they pay
 - £1.36 billion as a result of subsistence spending
 - £121 million through visitor spending
- The £1 billion of direct spending through the tuition fees paid by international students represents 39% of the total fee income of London's universities.
- International students support nearly 70,000 jobs in London – at their place of study and across the economy through their expenditure on fees and subsistence.

- Only 12% of international students remained in the UK after their studies finished, so that UK employers could make use of their skills; the vast majority is likely to return home to work.
- Around 5,000 international students switch into work visa routes and enter the UK labour market each year after completing their studies, representing less than 3% of the total number of students graduating from London universities who enter the UK labour market.
- Of those international students entering the UK labour market, the majority worked in education and cultural activities; financial services; and retail, earning an average salary of £19,000 p.a. and contributing an estimated £9million to the UK Government via income tax and £17 million per year in National Insurance contributions.

Suggestions that they are a net drain on the economy are wrong

- International students in London are estimated to consume public services, including the NHS, at a cost of £540 million per annum.
- They have no recourse to public welfare benefits as a condition of their visas.
- International students represent 0.6% of total London commuters during peak hours and the cost of their use of public transport in terms of additional congestion is negligible.
- International students do not add to the problem of a lack of affordable housing in London.
- London's international students bring a net benefit of £2.3 billion per annum to our economy. That's around £34,122 per student, on average.

They help boost the UK on the world stage, even after they leave

- 60% of international students are more likely to do business with the UK as a result of studying here. A positive experience living, studying and working in London generates soft power. International students are more likely to form long-term ties with the UK, which helps to strengthen the UK's influence and competitiveness in the world.

They enjoy London, benefit from it, but want to return home

- 76% of students felt welcome during their studies in London.
- More than 90% of those who felt welcome would recommend studying in the UK to their friends and family.
- 60% said that studying in London has improved their career prospects either at home or in the UK.
- An estimated 88% returned home immediately following their studies.

They find our immigration system cumbersome

- More than one third of the students responding to the survey found that Britain's complex immigration system negatively affected their experience of studying here.
- The vast majority of respondents commented about the difficulty of securing work in the UK after they had completed their studies. Anecdotally, the survey revealed that students feel that UK employers are deterred from recruiting international students because of the bureaucratic process and cost of securing a sponsor license.

Conclusions and recommendations

It is clear that London's international students make a positive net contribution to the UK economy, as their spending supports jobs and their experience strengthens the UK's influence and competitiveness across the globe. They are temporary visitors to the UK: some remain in the UK to work and apply their new skills for the benefit of UK business, but the vast majority return home after their studies.

Unfortunately Britain's immigration system is often seen as a barrier. It is hoped that this study's analysis will lead policymakers to appreciate better the contribution that international students make and adapt their immigration policy so that it results in international students feeling more welcomed. The report makes three key recommendations in this regard:

- **Abolish the net migration target:** immigration policy should not be driven by arbitrary targets which are dependent in part on the number of British citizens who choose to work abroad – or to return home. Instead, policy-makers need hard data, generated through better data collection on migration so that the real facts on inward and outward flows can be assessed.
- **Define students as temporary visitors not migrants:** They are here for a short time only and by choosing to study in the UK, they are contributing to jobs, growth and cultural understanding in this country.
- **Make it easier for international students to work in the UK post-study:** reinstate the automatic option or make it easier for international students to work here for a few years after graduation; this would be good for UK universities, good for UK business, and good for Britain's long-term relations with the global business community when these graduates return to their home countries. As international students switch from study to work, they would no longer be a temporary visitor and would be counted as a work migrant in the migration statistics.



1 Introduction

This section outlines the aims and objectives of this report and provides an overview of its scope and the framework which underpins the analysis. Further details of the methodology, the data sources and the assumptions used are provided in later sections.

1.1 Aims and objectives

The aim of this report is to assess the economic costs and benefits of international students to the London economy and to the UK economy.

We distinguish between the “short-term” effects which arise while students are studying in London and the potential “long-term” impacts that arise after graduating, for example as students join the local labour market.

Short-term figures are presented based on data for the academic year 2013/14. This is used as a reference point but it is likely that the net impact will broadly recur on an annual basis, although it is sensitive to the number of students.

Costs and benefits are measured in terms of both contribution to Gross Domestic Product (GDP) – which is measured as gross value added (GVA) – and employment.⁷

1.2 Framework

The report assesses the impact of all international students in London.

An international student is defined as someone who has not been domiciled within the European Union (EU) for the three years prior to the start of their course. International students in the PwC and London First survey are identified as those who are nationals of countries outside the EU as of 2011.⁸

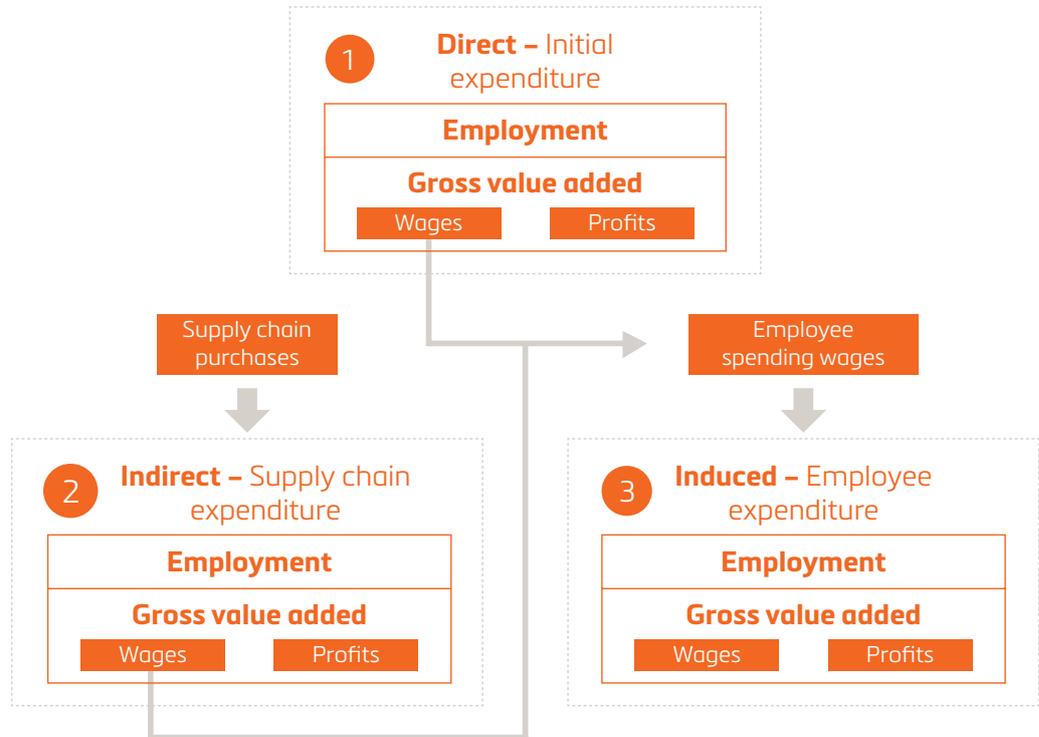
The impact on GVA and employment (both costs and benefits) is quantified in terms of three separate effects:

- **Direct:** refers to the economic activity resulting from the direct presence of international students at university.
- **Indirect:** consists of activity that is supported as a result of local supply-chain purchases, the additional local procurement resulting from these purchases and so on.
- **Induced:** involves activity that is supported by the spending of those employed as a result of the direct and indirect impacts.

7. The impact on GVA is estimated using input-output analysis. The methodology is described in more detail below and in Appendix C. GVA is a measure in economics of the value of goods and services produced in an area, industry or sector of an economy. Both GVA and GDP measure economic output and their relationship is defined as: $GVA + \text{taxes on products} - \text{subsidies on products} = GDP$.

8. We include Iceland, Liechtenstein and Norway as EU students since they have the same rights as EU citizens.

Figure 1: Direct, indirect and induced impact



Source: PwC analysis

1.3 Approach & methodology

This part of the section outlines the approach we took to conduct this economic impact assessment. It provides:

- An overview of the impacts considered.
- An outline of the study's scope.

Further details of the methodology, the data sources and the assumptions used are provided in later sections.

1.3.1 Benefits and costs considered in the study

This study quantifies the economic costs and benefits of international students at London-based universities to the London and wider UK economy. Costs and benefits are assessed in the short-term, while students are at university in London, and the long-term, after students graduate and join the labour market in the UK or abroad. Impacts considered in this study are the following:

- Spending in the economy including spending on tuition fees, subsistence and spending from friends and relatives visiting students.
- Use of public services.
- Use of public transport.
- Participation in the UK labour market and other wider economic benefits.

1.3.2 Scope of the study

The scope of this study was identified taking into account data and resource availability. For the purposes of this study, international students are defined as non-EU domicile students that study in UK higher education (HE) providers. Throughout our analysis we use student data from two main data sources: those published by the Higher Education Statistics Agency (HESA) and a survey of current students and university alumni conducted jointly by London First and PwC (the "Survey") (see Appendix A for more detailed information on the Survey). HESA is the official UK agency for the collection, analysis and dissemination of quantitative information about higher education. It should be noted that any data collected by HESA in relation to international students relates to international as defined by domicile. This fits with the definition we have provided for the purposes of this study. Moreover, the study focused on the economic contribution of international students in London. Therefore, the study covers the 39 HE institutions in London (see Appendix B for a list of institutions covered).

As described above, throughout our analysis, we support the figures estimated, using publicly available data such as HESA as well as the Survey responses. The Survey respondents come from 10 out of the 39 London universities (Goldsmiths College, Kingston University, London South Bank University, Roehampton University, The Royal Veterinary College, St George's Hospital Medical School, Trinity Laban Conservatoire of Music and Dance, University College London, UCL Institute of Education and The School of Oriental and African Studies).

We examine our Survey data and use student data from HESA to assess whether we can extrapolate the Survey results to draw conclusions on the impact of international students in London. The pattern of domicile of postgraduate and undergraduate students in the 10 surveyed institutions is similar to the pattern across all HE institutions in London. More specifically, postgraduate (undergraduate) students across London universities in 2013/14 academic year consist of 29 (13)% non-EU students, 58 (79)% UK and 13 (7)% other EU students. Similarly, across the 10 surveyed universities, postgraduate students are comprised of 23 (13)% non-EU students, 66 (81)% UK students and 11 (6)% other EU students. Therefore, we believe that the universities covered in the Survey sample could be used as representative of the average London HEFCE (Higher Education Funding Council for England) universities and, for the purpose of our analysis, the Survey could be used to complement the economic impact assessment we conduct using publicly available data. However, given the wide range of London HE institutions (for example, some are research-based and some are teaching-based), care is needed in drawing conclusions about individual institutions.

1.4 Report structure

The remainder of this report is structured as follows:

- **Section 2: Context** describes the pattern of international students across London universities, the trend over recent years as well as key reasons for studying in the UK.
- **Section 3: Economic benefits** examines the short term benefits of international students in London in 2013/14. More specifically, three main benefits are estimated: tuition fees, student subsistence spending and visitor spending.
- **Section 4: Economic costs of international students** estimates the short term costs associated with international students. First we estimate the cost to the UK Government of the students' use of public resources.⁹ We also examine the impact of international students on congestion in public transport in London.
- **Section 5: Long term economic impacts'** examine the long term benefits international students are likely to bring to the UK. The section covers international students' **participation in the UK labour market**, i.e. we examine student patterns in relation to their labour market participation during and after their studies in London universities, and **other wider economic benefits**.
- **Section 6: Views of the UK immigration system** analyses students' views of the UK immigration system during and after their studies in the UK.

A more detailed explanation of our Survey, the scope of the study, our methodology and the sources used can be found in the **Appendices**.

9. For the purposes of our analysis, public resources include: general public services; defence; public order and safety; economic affairs; environmental protection; housing and community affairs; health; recreation, culture and religion; education; and social protection.



2 Context

2.1 Pattern of international students across London universities

In the 2013/14 academic year, a significant proportion of the UK's international students were found at HE institutions in London. This may be expected since one quarter of the UK's Higher Education Funding Council for England (HEFCE) funded institutions are based in London. According to HESA data, 67,405 international students (non-EU domicile) out of a total 310,195 international students across the UK studied in London-based universities (i.e. 22% of all international students in the UK are enrolled in HE providers in London). International students in London represent 18% of the total student population in London HE institutions (366,605). The majority (90%) of international students were full-time.

Table 1: All students at London HE institutions by level of study and domicile (2013/14)

	UK	Other EU	Non-EU	Total
Postgraduate	68,810	14,955	34,860	118,625
Undergraduate	197,095	18,340	32,545	247,980
Total	265,905	33,295	67,405	366,605

Source: HESA

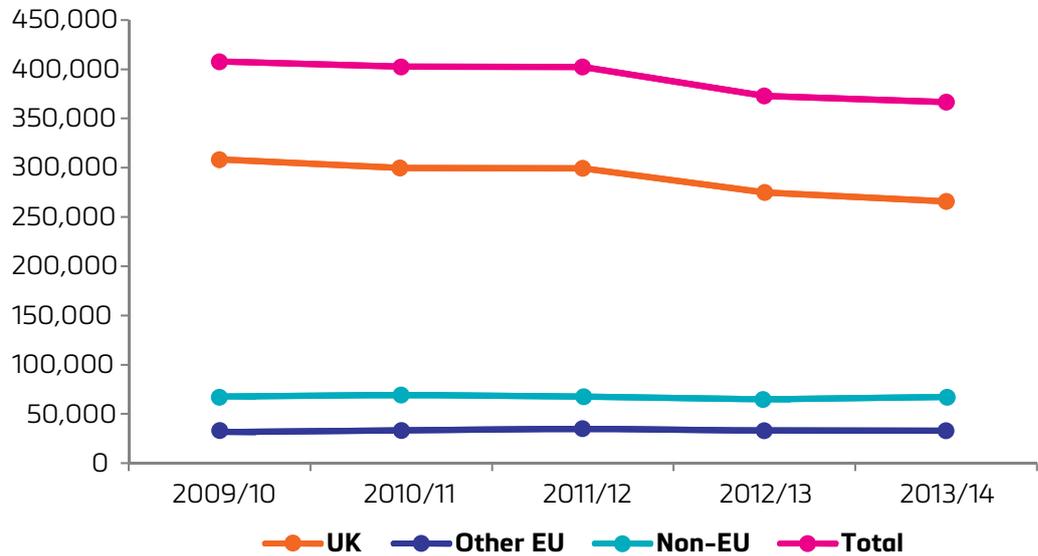
The total number of students in HE providers in London has fallen since the 2009/2010 academic year by around 40,000 students (see Table 2 below). This fall in total number of students is driven by a fall in UK-domicile students, i.e. a fall of more than 40,000 in five academic years. In comparison, the number of international students has remained similar and the number of other European students studying in London HE institutions has slightly increased. These trends, in addition to the fact that one out of five students attending London's HE institutions are from outside the EU, indicate the importance that international students play in the HE sector and the potential significance of their economic contribution, both positive and negative, in the London economy.

Table 2: Student numbers in London HE institutions by country of domicile (2009/10–2013/14)

	2009/10	2010/11	2011/12	2012/13	2013/14
UK	308,445	299,735	299,405	274,895	265,905
Other EU	31,660	33,395	35,260	33,090	33,295
Non-EU	67,700	69,365	67,735	64,920	67,405
Total	407,805	402,495	402,400	372,905	366,605

Source: HESA

Figure 2: Student numbers in London HE institutions by domicile, 2009/10–2013/14



Country of domicile	UK	Other EU	Non-EU	Total
% change (2009/10–2013/14)	13.8	5.2	-0.4	-10.1

Source: HESA

International students in UK universities come from over 190 countries. The UK is just below the US in terms of the total number and diversity of international students in its HE institutions (Universities UK, 2011). Around 30% of international students across all UK HE institutions were of Chinese descent (87,895 out of a total international student population in UK HE institutions of 310,195) with other common nationalities including India (6%), Nigeria (6%), and Malaysia (5%).¹⁰ International students in London reflect a similar set of countries; the majority (18%) comes from China followed by the United States (9%), India (7%), Hong Kong (5%), Malaysia (4%) and Nigeria (4%). According to HESA, the top 10 countries by domicile of international students at UK higher education institutions in 2013/14 were:

¹⁰. Please note that, due to data limitations, the analysis on the top non-EU countries of domicile for HE student enrolments is based on the total student population in all HE providers located in the UK.

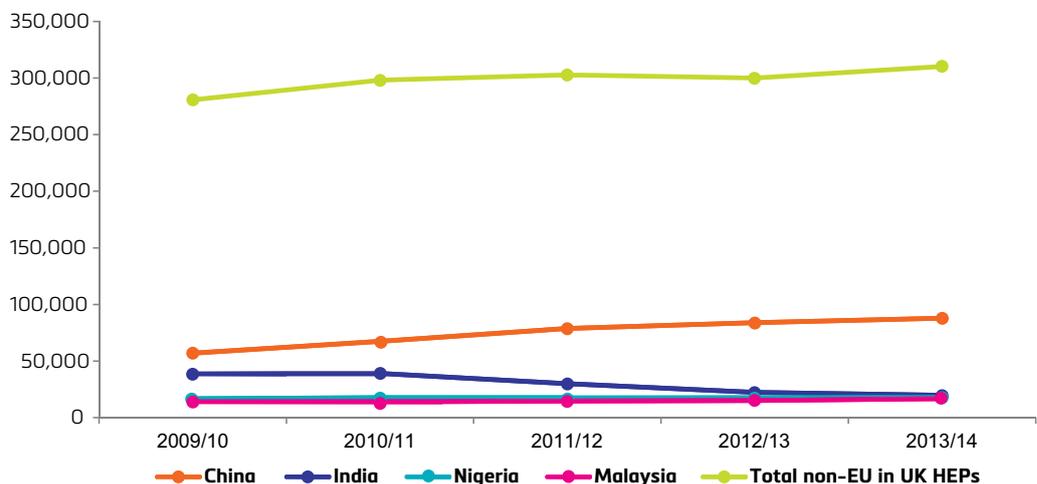
Table 3: Origin of international students in UK HE institutions – Top ten non-EU countries of domicile, 2013/14

Country of domicile	Number of students	Share of total students
China	87,895	28%
India	19,750	6%
Nigeria	18,020	6%
Malaysia	16,635	5%
United States	16,485	5%
Hong Kong (Special Administrative Region of China)	14,725	5%
Saudi Arabia	9,060	3%
Singapore	6,790	2%
Pakistan	6,665	2%
Canada	6,350	2%
All other	107,820	35%
Total International Student population at UK HE providers	310,195	–

Source: HESA

Over the past five years, there have been some significant trends in international students coming to study in the UK. More specifically, since the 2009/10 academic year, the number of international students from India has fallen by 50% whereas the number of international students from China has increased by more than 50% (see Figure 3). Other countries experiencing a dramatic export of students are Singapore with the number of students in the UK increasing by 80% over the past five years and Hong Kong with an increase of around 50% (HESA, 2014). Overall, the number of non-EU students studying at UK HE providers has increased by 6% over the past few years reflecting a variety of positive and negative trends across exporting countries (see Figure 3).

Figure 3: Origin of international students in UK HEPs, 2009/10–2013/14



Source: HESA

2.2 Reasons for studying in London/the UK

Universities in the UK and, London in particular, attract a substantial number of international students. Students come from a wide range of countries to acquire qualifications in the UK. We use data from the Survey to examine the reasons students come to the UK to study. The majority of students state that the main reasons they chose London as their place of study are the "Quality of Education", the "attraction of London as a social and cultural centre", the "English speaking education" and the "reputation of London's universities". A third of students responding to the Survey also state the "opportunities to travel around Europe" and "future job prospects" as reasons for studying in London.

The relation between studying in the UK and future job prospects, either in the UK or abroad, is an important question for policy makers in both the UK and exporting countries:

- Around two thirds of international students agree with the statement that studying in the UK has improved their career prospects more than if they had studied in a different country.
- Around 60% of Survey respondents agree that studying in the UK has made them more likely to look for a job in the UK or do business in the UK in the future.
- On average, 80% of students would recommend studying in the UK to friends and family and 14% of students stated a "recommendation from a family friend" as one of the reasons they chose to study in London.

Figure 4: Reasons for studying in the UK



Source: PwC analysis & London First/PwC survey

2.3 Conclusion

In conclusion, the UK is home to some of the best universities in the world and, therefore, it will continue to attract students from around the world. The impact of international students in the UK has been the subject of much debate in recent time. This study draws on data from HESA and our Survey to estimate the short-term economic costs and benefits of international students and describes their pattern in London, both while studying as well as post-graduation.



3 Economic benefits

3.1 Introduction

The short-term economic benefits that an international student brings to London and the UK are essentially analogous to those generated by an international tourist, i.e. international students contribute to the economy by creating more value added and, therefore, enhance the GDP of London and the UK. We use input-output analysis to estimate the impact of international students on GVA.

An international student injects spending into the local economy. In this report we identify three separate channels through which these injections boost value added and thus support GDP across sectors in the economy:

- Fee income paid directly to the University.
- Subsistence spending of international students whilst studying.
- Expenditure of friends and relatives that come to visit international students.

The two tables below present an overview of our economic benefit estimates: they show the additional value added and the jobs supported by international students. In the rest of this section we discuss our approach to estimating each impact and our results in detail.

Table 4: Value added arising from spending by international (non-EU) students at London HE institutions (2013/14), (£m)¹¹

	Direct spending	Direct value added	Indirect value added	Induced value added	Total value added
Fees	£1,003	£717	£183	£417	£1,317
Subsistence spending	£1,240	£654	£375	£335	£1,364
Visitor spending	£115	£56	£35	£30	£121
Total	£2,358	£1,427	£593	£782	£2,802

Source: PwC analysis

Table 5: Jobs supported by the activities of international (non-EU) students at London HE institutions (2013/14)^{12,13}

	Direct employment	Indirect employment	Induced employment	Total employment
Fees	20,700	4,500	7,600	32,800
Subsistence spending	20,100	7,000	6,100	33,200
Visitor spending	1,900	700	600	3,200
Total	42,700	12,200	14,300	69,200

Source: PwC analysis

11. Total value added is defined as the sum of direct, indirect and induced value added.

12. Total employment is defined as the sum of direct, indirect and induced impact on employment.

13. Job numbers are rounded to the nearest hundred.

3.2 Fees

3.2.1 Approach and methodology

The fee income from students represents the most immediate economic benefit to the London and UK economies from international students. The fee data used for this analysis are drawn from HESA. HESA provides data on the total fee income for all London's HEFCE funded institutions; this figure is available as a total including fees paid by all UK, EU (non-UK) and non-EU students as well as the total fee income from non-EU students.

In addition to the direct income from tuition fees paid by international students in London, we estimate the corresponding GVA and employment impact, including the direct, indirect (via the supply chain) and induced impact (due to the spending of the employees). To do this, we use an Input-Output (IO) table for the UK economy produced by the Office for National Statistics (ONS).¹⁴ The UK IO table contains data on the transactions between different sectors of the economy and is used to estimate the economic and the employment multipliers for the indirect and induced impacts (i.e. an estimate of the extent to which a given purchase in one sector will generate demand for other sectors) (see Appendix C for a description of the IO methodology). For example, a unit increase in tuition fee income creates a direct output for the HE institution that receives the tuition fee. But it also, in turn, produces an additional unit of demand for other goods or service (e.g. logistics, IT services, food and beverages). This is the indirect impact which input-output multipliers aim to measure. Finally, employees at the sectors that are impacted indirectly (e.g. IT workers), spend their salaries in other sectors of the economy such as food and beverage and transport. This is the induced impact via the spending of employees. It is important to highlight a caveat of our IO analysis. We are using a UK IO analysis and, as a result, we are not able to identify what the impact in the London economy will be. Nevertheless, our estimates are useful in approximating the magnitude of the impact as they represent the impact in the UK economy and it is likely that, since our Survey respondents have indicated that they do not travel much within the UK, remaining local to their university campus, we can therefore assume most of the impacts occur in London.

3.2.2 Results

In total, during the 2013/14 academic year, international students contributed £1,003 million in fee income to London universities.¹⁵ Total fee income from all London's HEFCE funded institutions was £2,594 million in 2013/14. The fee income from international students (non-EU), therefore, accounts for 39% of this total fee income.

There were 67,405 international (non-EU) students enrolled in London HEFCE funded universities in the 2013/14 academic year. This implies the average international student in London paid £14,880 in tuition fees to London universities.

14. The latest available UK IO table produced by the ONS is for 2010.

15. This includes all income received in respect of fees for students on all courses for which fees are charged. Where fees are waived in whole or in part, the income due, though not received, is included. Non-EU domicile includes fees for all HE courses for students whose normal residence prior to commencing their programme of study was outside the EU.

As described in the section above, we model the tuition fee income received by HE institutions in an IO table to estimate the direct, indirect and induced impacts across the UK economy. HE institutions in London receive the income from the tuition fees and spend it across different sectors of the economy to deliver education services; creating a multiplier effect. We estimate that the direct income from tuition fees contributed £1,317 million to UK GDP; £717 million directly, £183 million via the supply chain and £417 million via the spending of employees. In addition, the £1,003 million in tuition fee income from international students generated a total of 32,800 jobs. Of these, 20,700 were created directly, 4,500 in the supply chain and 7,600 due to the spending of employees.

Table 6: Value added and jobs supported by fees paid by international (non-EU) students at London HE institutions (2013/14)

	Direct spending	Direct	Indirect	Induced	Total
Value added (£m)	£1,003	£717	£183	£417	£1,317
Jobs	–	20,700	4,500	7,600	32,800

Source: PwC analysis

3.3 Subsistence

3.3.1 Approach and methodology

Subsistence spending refers to all spending by international students on goods and services other than on their tuition fees. It includes, for instance, expenditure on food, rent, travel and entertainment, as well as expenditure on books and other course materials.

To estimate subsistence expenditure, we use the Student Income and Expenditure Survey (SIES). The SIES provides information on the pattern of spending of both full time and part time students, identifying the key areas in which these students make purchases.¹⁶ The latest available SIES is for 2011/12 and, therefore, the data have been adjusted to obtain expenditure estimates for the 2013/14 academic year using UK Consumer Price Index (CPI) data from the ONS.

Since the SIES expenditure data cover only UK-domicile students, we adjust the figures to international students following a two-step procedure. First, we estimate each spend item's relative share in total subsistence spend for UK-domicile students. For example, for full time students in London, expenditure on food represents around 55% of their total subsistence spending. Second, we adjust the spending figures to international students. To do this, we first estimate the average per capita spending of an international student in London. Data is available on the average per capita spending of international students in the UK.¹⁷ Data is also available on the per capita spending of UK-domicile students in the UK and in London. Therefore, we use the London scale factor estimated for UK-domicile factors to adjust the international student per capita spending figure for the higher living cost in London. We then apply the spending shares estimated in step one to the average per capita spend to allocate the spending across subsistence sectors such as food, housing and transport. A key assumption in our analysis is that the relative patterns of spend across the different items such as food is similar across UK-domicile and international students.

We then use these estimates along with the number of full time (60,580) and part time students (6,825) in HE providers in London in 2013/14 to estimate the total subsistence spending by international students.

Similarly to the economic benefits derived from tuition fees, in addition to the direct spending of international students in London, we estimate the corresponding GVA and employment impact using input-output analysis, including the direct, indirect (via the supply chain) and induced impact (due to the spending of the employees). To conduct the input-output analysis, we first map the item spending areas to the sectors in the input-output model. For example, spending in food items occurs in the retail sector as well as the food and beverage serving services. This analysis takes into account economic multipliers that measure the total output created as a consequence of a unit increase in demand of one good or service. For example, a unit increase in demand for groceries creates a direct output for the grocery store where the items are purchased.

16. The three key components of student expenditure identified in the Survey are living costs, housing costs and participation costs. Living costs are by far the largest category and includes expenditure on: food and drink; personal items such as clothes, toiletries, mobile phones, CDs, magazines and cigarettes; entertainment, including nightclubs, concerts, sports and gambling; household goods including cleaning and servicing costs; and non-course travel. Housing costs are the second-largest category of expenditure for most students and includes rent, mortgage costs, retainers, council tax and household bills. Participation costs are the costs that students incur as a direct result of attending university or college and are the third-largest category of expenditure for most students. They include: the cost of course-related books, equipment and stationery; the costs of travelling to and from their university or college; the costs of any childcare that parents obtain in order to allow them to study and all course fees paid by the students or paid by their families on their behalf.

17. Universities UK, 2013. The impact of universities on the UK economy. Available at: <http://www.universitiesuk.ac.uk/highereducation/Documents/2014/TheImpactOfUniversitiesOnTheUkEconomy.pdf>

But it also, in turn, produces an additional unit of demand for other goods or services (e.g. agricultural production and transport to bring the groceries from the warehouse or field to the store). This is the indirect impact through the supply chain which input-output multipliers aim to measure. Finally, employees in these sectors spend their salaries on food and beverage and other sectors in the economy which is identified as the induced impact.

3.3.2 Results

In total, we estimate that, in 2013/14, a full time international student in London will spend around £16,500 per year on subsistence, a figure that rises to around £22,600 for part time students. Part-time students tend to spend more than full-time students for a number of reasons including because they are more likely to be employed and earn income which is then reflected in their higher spending.

Table 7 provides a detailed spending breakdown and the allocation to each sector. As most students tend not to travel significantly, for the purposes of this study, we assume that all subsistence spending occurs in the UK and in London.¹⁸

Table 7: Estimated breakdown of student subsistence expenditure (£ per head, 2013/14)

Spending item	Full-time	Part-time	Average (weighted)
Living costs	£9,182	£13,845	£8,598
Food	£2,556	£4,494	£2,562
Personal items	£2,915	£3,266	£2,432
Entertainment	£1,304	£2,109	£1,259
Household goods	£518	£1,071	£561
Non-course travel	£2,011	£3,035	£1,884
Other living costs	£69	£95	£62
Housing costs	£7,088	£6,591	£5,556
Mortgage and rent costs	£5,831	£5,259	£4,527
Retainer costs	£329	£53	£191
Other housing costs	£777	£971	£675
Participation costs (excluding tuition fees)	£1,624	£1,739	£1,333
Direct course costs (e.g. books and equipment)	£798	£572	£580
Costs of facilitating participation (e.g. travel)	£826	£1,167	£753
Spending on children	£529	£1,082	£570
Estimated total subsistence costs	£16,501	£22,687	£14,871

Source: PwC analysis

18. Note that we are estimating the economic contribution of international students in the UK. It is likely that the majority of spending impacts and especially the direct impacts of subsistence spending and tuition fee spending is likely to occur in London. However, we do not attempt to distinguish the impacts that occur in London and those that occur outside London.

The spending per capita was scaled up by the number of full time and part time international students that were attending London universities in 2013/14.

Total subsistence spending by international students in London in 2013/14 is, therefore, estimated to be £1.24 billion. Student spending was estimated to contribute £654 million to UK GDP with a further £375 million via the supply chain and £335 million supported by the associated induced spending by employees, a total of £1.36 billion to UK GDP.

This impact can also be expressed in terms of the employment supported. We estimate that total subsistence spending by students contributed an additional 33,200 jobs in the UK; 20,100 jobs created directly via the spending, 7,000 jobs via the supply chain impacts and an additional 6,100 jobs via the induced spending by employees.

Table 8: Value added and jobs supported by subsistence spending of international (non-EU) students at London HE institutions (2013/14)

	Direct spending	Direct	Indirect	Induced	Total
Value added (£m)	£1,240	£654	£375	£335	£1,364
Jobs	–	20,100	7,000	6,100	33,200

Source: PwC analysis

3.4 Visitor spending

3.4.1 Approach and methodology

The final short-term economic benefit of international students is expenditure from visits by foreign friends and relatives visiting the UK. International students generate further economic benefits through attracting visitors (friends and relatives) from their home country to London. We adopt two methods to estimate the economic benefits of visitors to students.

Our first approach uses data from the Survey in conjunction with data from the International Passenger Survey (IPS). First, we use the Survey results to estimate the share of students that receive visits from friends and relatives during their studies and the number of visits they receive per year. Second, we use the IPS tourism data to assess the potential amount spent by friends and relatives during their visits to students. The IPS provides detailed data on expenditure and length of stay by various types of visitors to the UK as a whole and to London broken down by purpose of visit. We are interested in visitors visiting friends and relatives (VFR).

To conduct a sensitivity analysis we use a second approach to estimate the economic benefits of visitors to international students in London. This analysis is crucial to test the robustness of our results. The results from the first approach do not take into account the differences in visitor spending by country of origin which may bias our estimates. The approach we follow is adopted from the Oxford Economics 2007 study:¹⁹

19. Oxford Economics. 2007. The economic impact of London's international students. Available at: <http://www.londonhigher.ac.uk/fileadmin/documents/OxfordEconomicsReport.pdf>

- We use data from HESA to estimate the number of international students in London by country of birth/domicile.
- We then use the London Census of 2011 to estimate the number of people residing in London by country of birth.
- We combine the first two steps to estimate the share of international students relative to the number of people residing in London by country of birth. We apply these shares to the total number of visitors visiting friends and family from each country to get an estimate of the number of visitors to international students. For example, there were 15,000 students from China in 2013/14 in London HE institutions and the total number of Chinese residing in London was 39,452 in 2011. Therefore, we assume that 38 percent (15,000/39,452) of Chinese visitors visiting friends and relatives in London are visiting students, i.e. 5,159 Chinese visited friends and relatives in 2013/14 of a total of 13,377 Chinese visiting friends and relatives in London in 2013/14.
- We then use IPS data to estimate spending per visit by country of origin.
- We then apply the estimated spend per visit to the number of visits to students from each country and get a total estimate of the student visitor spending in London.
- For countries for which tourism data is not available we estimate the number of visitors and the average spend per visit making a series of assumptions. First, we estimate a weighted average of the share of visitors to students in London as a percentage of the total number of students in London. Second, we estimate the average spend per visit by region using the countries for which IPS data is available. Thirdly, we apply the above to the countries for which tourism data is not available but data on the number of students in London is available by HESA. It is important to note that tourism data is available for 80 percent of the top 30 non-EU countries represented by international students in London. Therefore, we only make assumptions to estimate the total spend for countries that represent a small share of international students in London and, therefore, have a small contribution to the regional economy.²⁰
- Finally, we add up total spend by all visitors to international students in London in 2013 to estimate the total spend by friends and relatives visiting international students in London.

There are, however, two areas in which these data are still insufficiently detailed:

- The IPS data only specify that visitors are visiting friends and relatives. They do not specify who their friends and relatives are, or whether or not they are students. We assume that visitors are all visiting foreign nationals from their own country and that the proportion of these visits that are to students are proportionate to the percentage of the population of that nationality that is made up of students.
- Second, the IPS does not specify where within the UK visitor spending takes place. We assume that those visiting students in London conduct all their spending in London too.

²⁰ Note that total spend of friends and relatives visiting students in London for which tourism data is available by country comes up to a total of £92 million. Adding our estimates for countries for which data was not available and, therefore, assumptions were used, rises the total spending to £115 million, i.e. a 25% increase.

Finally, we use the UK IO table to estimate the contribution of the visitor spending to UK GDP and employment. To conduct this analysis we use data from the IPS that allocates visitor spending in the UK across sectors. A key assumption in this analysis is that the patterns of relative spending across sectors are similar for visitors across the UK, i.e. visitors across the UK spend their money in similar sectors as visitors in London do. Throughout this analysis we assume that visitors would otherwise not have visited the UK.

3.4.2 Results

We estimate that, in total, friends and relatives that visit international students in London spent £62 million in 2013/14. We estimate that this spending will contribute £65 million to UK GDP; the spending will directly generate valued added of £30 million with an additional £19 million and £16 million supported via indirect (supply chain) and induced (employee spending) effects.

Another way to express the impact is in terms of the impact on employment. Visitor spending in the economy will generate employment across many sectors of the economy. We estimate that the spending directly generated 1,000 jobs with a further 400 jobs being supported via the supply chain and 300 jobs supported via associated induced spending.

Table 9: Value added and jobs supported by spending of visitors to international (non-EU) students at London HE institutions (2013/14) (Methodology 1)

	Direct spending	Direct	Indirect	Induced	Total
Value added (£m)	£62	£30	£19	£16	£65
Jobs	–	1,000	400	300	1,700

Source: PwC analysis

Using the second methodology described above, i.e. complementing data on the number of international students in London with tourism data on visitors visiting friends and relatives in London and the UK, we estimate that, in total, friends and relatives that visit international students in London spent £115 million in 2013/14. **We estimate that this spending will contribute £121 million in UK GDP;** the spending will directly generate valued added of £56 million with an additional £35 million and £30 million supported via indirect (supply chain) and induced (employee spending) effects.

Another way to express the impact is in terms of the impact on employment. Visitor spending in the economy will generate employment across many sectors of the economy. We estimate that the spending directly generated 1,900 jobs with a further 700 jobs being supported via the supply chain and 600 jobs supported via associated induced spending.

The results are almost double the estimated spending using the Survey data and tourism data. We believe that this second approach is more robust as it takes account of differences in tourism spending by country of origin. However, compared to the estimated contribution of subsistence spending and tuition fees, the total value added is negligible.

Table 10: Value added and jobs supported by spending of visitors to international (non-EU) students at London HE institutions (2013/14) (Methodology 2)

	Direct spending	Direct	Indirect	Induced	Total
Value added (£m)	£115	£56	£35	£30	£121
Jobs	–	1,900	700	600	3,200

Source: PwC analysis



4 Economic costs of international students

4.1 Introduction

Our assessment of the short-term economic costs of international students was shaped by a review of the literature on the costs and economic benefits of immigration and other similar studies.²¹

Based on this we identified the following short-term costs:

- Consumption of public services: the most typically cited cost of immigration is the additional consumption of public services (health, education, police, fire, transport, waste removal etc).
- Increased congestion: increased congestion can impose costs on other residents. One example would be increased congestion in public transport which, by increasing journey times, can impact upon local business productivity and hence GDP.

Our view was that only the first impact could be robustly addressed quantitatively. We are also able to provide an approximate estimate of the magnitude of the second cost. We have excluded any effects on social capital from the short-term analysis. Below, we provide additional detail on our methodology for the other two costs.

4.2 Use of public services

4.2.1 Approach and methodology

In this section, we aim to estimate the short term costs of international students based on an estimate of publicly funded resources and services consumed by an international student while studying in the UK. It is assumed that these would otherwise been invested in London or elsewhere in the UK.

We start by assuming that international students in London consume, on average, the same value of public service expenditure as the average citizen in London. The latest data on average public spending per capita by function for London are for the fiscal year 2012-13 and come from HM Treasury's Public Expenditure Statistical Analysis (PESA).

These data exclude debt interest payments which, it could be argued, reflect past investments in infrastructure (from which international students enjoy benefits whilst residing in the UK). If true, this would mean that the PESA data will tend to understate the actual cost of international students. On the other hand, it is difficult to assign this cost to international students so we exclude it from the calculation.

21. In the case of the UK, some recent high-profile examples include Sriskandarajah, Cooley and Reed (2005), Dustmann, Frattini and Hall (2010) and House of Lords (2008).

Moreover, our method is likely to overstate the average consumption of public services by international students. Most significantly, our analysis implicitly assumes that international students are present in the UK (and, hence, consume public resources) throughout the year. In reality, most international students, particularly undergraduates, are likely to spend a significant proportion of time outside of the country (returning home during vacations etc.). Our Survey results indicate that, on average, international students return to their home country twice per year. Overall, therefore, we believe that our simplified assumptions are more likely to overstate rather than understate the consumption of public services by international students.

We follow the same method applied by Oxford Economics in 2013 in its study of the impact of international students in Sheffield.²² We make four adjustments to the estimated costs obtained from PESA in order to generate a more robust estimate of the average consumption of public services by an international student at a London university during the 2013/14 academic year.

First, expenditure on health services reflects the average consumption of health resources which is known to vary significantly according to age. Data from Feachem, Sekhri and White (2002) demonstrate this effect (see Figure 5).²³ We, therefore, adjust the average per capita health expenditure figure based on the demographic breakdown of the population of London and the demographic pattern of health expenditure implied by the Feachem, Sekhri and White article. Although the data are outdated, what matters more is whether the relative cost per capita of the different age cohorts has changed over the intervening period rather than how much the actual monetary value of NHS costs per capita. We believe that, even though the monetary costs may have changed since 2000, the relative costs per age band remains the same. In addition, based on HESA data, we estimate that over 73% of international students during the 2013/14 academic year were below the age of 30, with the rest in the age group 30 and over. Given this, we assume that all students fit into the 16-44 age cohort. Because of their relatively young age, we expect international students to be healthier than the average citizen and, therefore, less likely to use the NHS.

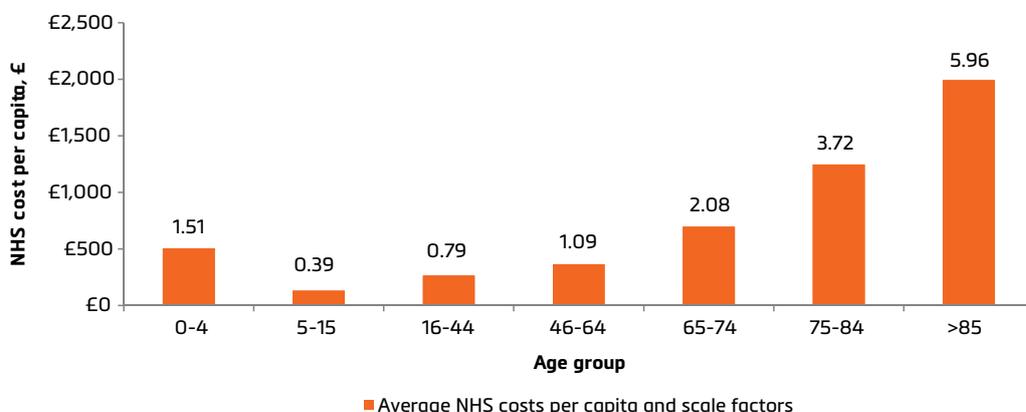
Applying data on the age breakdown of the population of London in 2001, to the figures from the Feachem, Sekhri and White article, indicates an average cost per capita of around £335 in 2000. Therefore we have scaled down average health expenditure by a factor of 0.79 (264, the average NHS cost per capita for people aged between 16 and 44, divided by 335 the average NHS cost per capita in London). Our analysis and assumptions regarding the age of international students (an average of under 30 years of age) imply that our estimate of the cost international students impose on public health services is likely therefore to be an overestimate (i.e. an estimate of the upper-end of the incremental cost).²⁴

22. Oxford Economics, 2013. The economic costs and benefits of international students. A report for the University of Sheffield. Available at: https://www.sheffield.ac.uk/polopoly_fs/1.259052!/file/sheffield-international-students-report.pdf

23. Feachem RG, Sekhri NK, White KL. 2002. Getting more for their dollar: a comparison of the NHS with California's Kaiser Permanente. The British Medical Journal; 324(7330):135-41. Available at: <http://www.bmj.com/content/bmj/324/7330/135.full.pdf>

24. The UK Government plans to introduce a health care surcharge on migrant (non-EEA) students of £150 per student per year. This Immigration Health Surcharge is coming into effect from April 2015. The surcharge will apply to all non-EEA who apply to come to the UK to work (£200 per year), study or join family for a time-limited period of more than 6 months. This is not intended to cover the full costs of health care services and will come into effect in April 2015. Therefore, it should not be compared to our estimates presented below.

Figure 5: Average NHS costs per capita by age band and scale factors (2000)²⁵



Source: Feachem, Sekhri and White (2002)

The Survey results indicate that around two-thirds of international students registered with a General Practitioner (GP) during their studies in the UK. Moreover, 57% of the respondents used the UK National Health Service (NHS) whilst studying in the UK, i.e. slightly more than half of the international students responding to the survey saw a doctor or nurse at a NHS hospital or health practice. Finally, approximately 83% of respondents that used the UK NHS whilst studying, indicated that they did not pay for treatment. The rest, 17% of respondents that used the NHS while studying, stated that they paid for treatment. Analysis of their comments regarding the cost of treatment shows that it ranges from £5 to £200 and from a payment for a prescription to the cost of dental surgery. The average cost was around £70 for the NHS treatment they received. These paid NHS services and treatments may partly offset the cost of international students to the NHS.

Second, we adjust the results to reflect international students' lack of entitlement to the majority of UK welfare benefits under the "no recourse to public funds" clause.²⁶ Although such "public funds" do not cover the full spectrum of UK welfare payments, we understand that it is highly unlikely that international students would qualify for these other welfare benefits as they are typically based on eligibility criteria which international students are unlikely to meet (e.g. eligibility for contributory employment and support allowance is based on national insurance contributions while access to maternity benefits and industrial injury benefits are dependent on the individual having worked in the UK previously). In addition, responses to the Survey indicate that more than 98% of international students and alumni did not claim benefits while studying in the UK. As such, we assume that international students do not consume any welfare benefits.

25. Scale factors are defined as the average NHS cost per capita for each age band divided by the average NHS cost per capita in London (i.e. weighted average, by population, across all age bands).

26. Here, public funds refer to: attendance allowance; carers allowance; child benefit; council tax benefit; disability living allowance; housing benefit; income support; income-based jobseeker's allowance; severe disablement allowance; social funds payment; child tax credit; the working tax credit; and the state pension credit. International students are unable to claim any of these benefits, although in cases where the student has temporarily run out of money they may have recourse to the housing benefit.

Third, we adjust for the fact that, as students, international students will directly pay for the higher education resources they consume. Data available from PESA only disaggregate regional spending per capita as far as higher education. Therefore, we first divide this figure by the number of higher education students in London in 2012/13 academic year. This figure likely overstates an international student's actual consumption of resources since a proportion of spending will be allocated to research funding. Most international students on taught courses will not consume these resources or impose the cost. To capture the spending on higher education teaching related activities, we use HEFCE data on funding allocations across London universities. HEFCE annually gathers information from higher education institutions in England in receipt of funding from them on their student number forecasts and the final funding allocations. The allocation of the total grant is broken down to three areas: Teaching funding, Research funding and Higher Innovation funding. To approximate the share of proportion of funding allocated for teaching we take an average across all London HE institutions, weighted by the share of the total London HEFCE grant each university receives. On this basis, we adjust the figure downwards using a scale factor of 0.53; this is the weighted average of funding allocation to teaching activities across London universities.

Fourth, we assume that international students do not impose an additional cost on housing (i.e. they do not add to the problem of lack of affordable housing in London). Students in London universities often live in either university accommodation or private rented accommodation during their studies in London. Two thirds of our Survey respondents indicated that, at some point during their studies, they had lived in privately rented accommodation. Half of the respondents also indicated that, at some point during their studies, they had lived in university accommodation.²⁷ Students having lived/living in privately rented accommodation during their studies pay, on average, €650 per month. This suggests that international students living in rented accommodation pay an average monthly rate broadly similar to the current market rate in the London real estate market. Therefore, the results suggest that even though international students use both university-owned accommodation and privately rented accommodation, the extent to which they displace UK citizens from affordable housing is negligible since on average they pay rents similar to the current market rates rather than the low-end.

Fifth, to obtain cost estimates for the 2013/14 academic year, we inflate our estimates using UK Consumer Price Index (CPI) data produced by the ONS.

Finally, we present the net economic contribution of international students in London comparing the benefits estimated above with the cost estimates we derive in this section.

27. Students and alumni were asked to indicate what type of accommodation they lived in during their studies. Some of the respondents indicated they had lived in more than one type of accommodation during their studies in the UK. More specifically they were asked: "Whilst studying did you rent accommodation or own accommodation? Please tick all that apply". Survey respondents were given the following set of choices: 1) private rent; 2) owned; 3) university accommodation; and 4) other.

4.2.2 Results

Table 10 shows how these various changes, as outlined in Section 4.2.1 above, affect our estimate of average consumption of public services per capita. The first column shows the unadjusted breakdown of expenditure for fiscal year 2012-13 according to PESA. The second column inflates these data to put them on a price basis for academic year 2013-14 based on the UK CPI. The final column reflects the adjustments we have made to estimate spending on health, education and social protection to reflect the special characteristics of international students.

In total, we estimate that, on average, each international student at London universities consumed public services costing £8,009 during the 2013/14 academic year. Scaling up by the number of international students in London suggests that total consumption was around £540m.

Table 11: Estimated average consumption per capita of public services by London international students (£ per head, 2013/14)

Category of expenditure	2012-13	2013-14 inflated	2013-14 adjusted
General public services	£88	£89	£89
of which: public and common services	£86	£87	£87
of which: international services	£3	£3	£3
Defence	£1	£1	£1
Public order and safety	£738	£750	£750
Economic affairs	£722	£734	£734
of which: enterprise and economic development	£57	£58	£58
of which: science and technology	£65	£66	£66
of which: employment policies	£43	£44	£44
of which: agriculture, fisheries and forestry	£13	£13	£13
of which: transport	£545	£554	£554
Environment protection	£141	£143	£143
Housing and community amenities ²⁸	£214	£217	£217
Health	£2,019	£2,051	£1,619
Recreation, culture and religion	£211	£214	£214
Education	£1,594	£1,620	£3,416
Social protection	£3,708	£3,767	£0
Total expenditure on public services	£9,435	£9,711	£8,009

Source: PwC analysis

28. The "Housing and community amenities" expenditure category includes spending on: housing development (local authority and other social housing), community development, water supply, street lighting etc.

4.3 Use of public transport

4.3.1 Approach and methodology

International students in London use public transport. This is likely to cause increased congestion and this can impose costs on London commuters. One possible impact pathway is that increased congestion leads to increased journey times that can have an impact on labour productivity and, therefore, GDP.

To estimate the economic cost of increased congestion in public transport due to the additional number of students (i.e. international students), we use data from our Survey. It is important to note that, due to data limitations, we are not able to provide an exact estimate of the cost as we do in the previous section.

Nevertheless, we estimate the approximate magnitude of the additional cost that the use of public transport by international students may impose.

We first estimate the share of international students in London that use public transport²⁹, how frequently they use it and whether they use it during peak hours. We are then able to estimate the total number of international students using public transport in peak hours. Data are available from Transport for London (TfL) on the number of London commuters during peak hours. This allows us to estimate what share international students using public transport represent during peak hours relative to the total number of London commuters.

4.3.2 Results

Before attempting to estimate the impact of international students on London's public transport, we use our Survey results to see whether students tend to live close to their university while studying. This is not indicative of whether students use public transport but it is likely that if they live around university their use of public transport, such as the underground, will be limited. We look at the alumni and student results separately and consider the top three universities from each Survey.

The majority (57%) of alumni respondents attended Kingston University followed by UCL (17%) and Roehampton University (13%). The results indicate that international students in London universities tended to live close to the location of their university. More specifically, the majority (75%) of Kingston University alumni indicated that they lived in Kingston upon Thames during their studies, the majority of UCL alumni lived in Camden (46%) and Islington (19%) close to the Bloomsbury campus and the majority (77%) of Roehampton University alumni lived in Richmond upon Thames.

The top three London universities represented in the Survey of current students, in terms of the number of respondents studying in that university, are Kingston University, UCL and SOAS. Like the alumni Survey, student responses regarding the area they lived during their studies in London suggest that they tended to live near the university campus. More specifically, the majority (71%) of Kingston students indicated that they lived in Kingston upon Thames whereas UCL and SOAS students indicated that they live in Camden (48% and 22% respectively), Islington (17% and 31%) and City of London (24% and 14%).

29. Public transport includes the London Underground, the London Overground, rail services and London Bus services.

Due to data limitations, to estimate the share that international students represent of total London commuters we conduct a transport congestion analysis only for London Underground commuters. Our Survey results indicated that, on average, around 75% of students use the London Underground and London Buses in a typical week while studying in the UK (73% and 76% respectively). Therefore, we believe that patterns of London Underground and Bus use by international students will be representative of the students' patterns of use of public transport.

We analyse our Survey results in relation to the use of London Underground to approximate the congestion cost international students may impose on the public transport system. Our Survey results indicated that, on average, 73% of international students use the London underground in a typical week while studying and 56% of those students that use the London underground use it during peak hours. This suggests that, on average, 41% of international students in London use the underground during peak hours (i.e. a total of around 28,000 out of 67,405). It is estimated that a total of 9.2 million people in London use the underground during peak hours per week; 4.7 million during the early morning peak hours and 4.5 million during the evening peak hours.³⁰

We assume that students that indicate that they use public transport during peak hours refer to their use once a day. Therefore, they represent 0.6% of total London commuters during peak hours (dividing by an average of London commuters between early AM and evening PM peak hours).

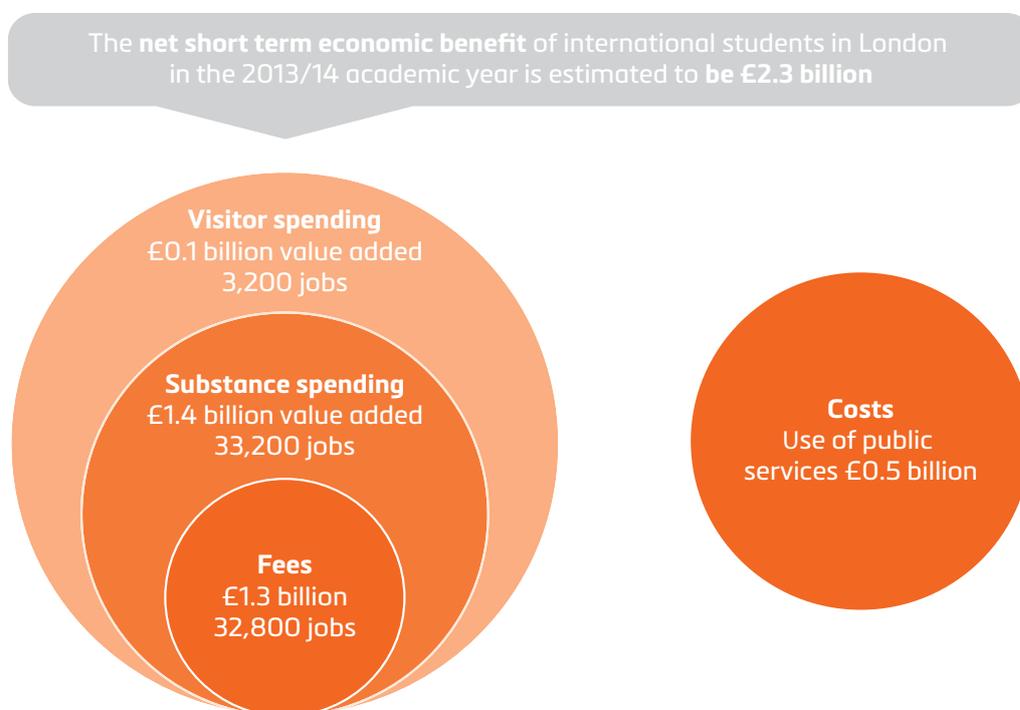
The estimated share is very small to negligible and, therefore, we expect the impact of international students on congestion during peak hours and their impact on the cost of public transport in terms of increased maintenance, staff etc. will be marginal. Therefore, for the purposes of our analysis, we do not account for the cost of public transport use.

30. TfL, 2014.

4.4 Conclusion

In Section 3, we estimated that, in the short-term, international students in London contributed a total of £2.8 billion to UK GDP through their spending on tuition fees and subsistence as well as via the spending of friends and relatives that visit them in London while studying. On the other hand, the short term costs of international students in London in the 2013/14 academic year, due to their consumption of public services, were £540 million. Therefore, the **net short-term economic benefit** of international students in London in the 2013/14 academic year is estimated to be £2.3 billion (see Figure 6).

Figure 6: Short term economic benefits and costs of international students in London, 2013/14



Source: PwC analysis



5 Long-term economic impacts

5.1 Introduction

In this section we examine the long-term economic impacts of international students in London. More specifically, we analyse their participation in the UK labour market. We look at the following labour market participation trends and wider economic benefits:

- Labour market participation during studying in the UK: In accordance with UK Immigration law, international students may work while studying in the UK (typically up to 20 hours per week during term time and full time during vacation periods). As a result, international students will earn UK income to spend while studying. Throughout our benefit analysis we have assumed that international students receive income from abroad, either from family, scholarships, loans or companies abroad, and have modelled the spending impacts as injections into the UK economy from abroad. In this section, we investigate the implications for our economic benefits estimates if we consider the income earned in the UK.
- Labour market participation after studying in the UK: Some international students may remain in the UK after graduation to find employment. The long term impact of international students will depend on the extent to which they remain in the labour market. We do not intend to estimate the long term economic benefits and costs of international students. In this section, however, we aim to draw insights on the labour market participation of international students after graduation and describe the potential impact they may have in the UK economy.

We also comment on other wider economic benefits such as the “soft power” argument on the impact of international HE students on global connectivity and trade. Other long-term benefits international students can bring to the UK include future tourism, international relations, increased trade and increased innovation.

Below we provide more details of the methodologies and results of each of the above impacts.

5.2 Participation in the UK labour market

5.2.1 During studies

5.2.1.1 Approach and methodology

We use data from our Survey to examine labour market patterns of international students while studying.³¹ This analysis is important in reinforcing our economic benefits analysis as it indicates whether students spend income earned in the UK or abroad. If students receive a big part of their income from the UK and we do not caveat for this in our spending analysis, our economic benefit estimates will be biased upwards since we assume an injection of money in the UK economy from abroad.

31. In conducting our analysis, we disregard London universities for which we have less than 25 survey responses to avoid potential small sample bias.

To conduct our analysis we follow five steps, including making a series of assumptions:

- We estimate the number of students that work while studying in London using our Survey results and the number of international students in London from HESA. Similarly to the previous sections, we then extrapolate survey results to the total population of international students in London.³²
- We estimate the average hours of work per week during term time and holidays.
- We estimate the average wage per hour across sectors and across alumni and students.
- Assuming that students work 5.5 months during term time and 5.5 months out of term we estimate their average annual income.
- We estimate average annual income as a share of the total student spending (i.e. subsistence spending and tuition fees paid by international students).

We create a set of scenarios to conduct a sensitivity analysis. This involves replicating the short-term economic benefit analysis with a modified spending shock to take into account the income earned in the UK.

5.2.1.2 Results

Our Survey results indicate that around 24% of international students worked while studying; a total of around 16,000 in London in 2014. The majority of students worked in the "Education and cultural activities", "Hospitality, hotels, catering and other services" and "Retail and related services" sectors. They worked, on average, 11 hours per week during term time and 15 hours per week during holidays. On average, they earned £7.80 per hour. This means that international students that work while studying are expected to earn around £5,000 per year. Since this is below the personal tax allowance of £9,440 and below the Class 1 (contributions on salary) National Insurance threshold of £5,676, we estimate that they will not contribute to the Exchequer via income tax or national insurance contributions.³³ This income from part-time employment while studying represents around 17% of their total spending of around £30,000 per year in the London economy (i.e. spending on subsistence and tuition fees). Thus, assuming around 16,000 international students work while studying and earn £5,000 per year; the total UK income international students receive from working while studying in London is around £80 million.

To consider the implications of this income for our economic benefit estimates we replicate our input-output analysis for subsistence spending and tuition fees. We consider three scenarios:

- **Scenario 1:** we assume that all income earned in the UK is used to fund subsistence spending.
- **Scenario 2:** we assume that all income earned in the UK is used to fund tuition fees.

32. Caution must be taken when extrapolating survey results since survey respondents attended a total of 10 out of 39 London HEFCE funded institutions. In addition, current student responses were a total of around 500 while the total international student population in London in 2013/14 was around 67,500 (i.e. 0.7% of international students enrolled in London universities in 2013/14).

33. For 2013-14, the income tax allowance for people born after 5 April 1948 was £9,440 and the Class 1 (contributions on salary) National Insurance threshold was £5,676 a year (£473 a month).

- **Scenario 3:** we assume that half of the income earned in the UK is used to pay the tuition fees and the other half funds subsistence spending.

Our results are presented in Table 12, Table 13 and Table 14. As can be seen the total contribution to UK GDP and employment changes only marginally, within a range of 3 to 4% across all scenarios.

Table 12: Spending shocks by scenario, (£m)

	Original	Scenario 1	Scenario 2	Scenario 3
Fees	£1,003	£923	£1,003	£963
Spending	£1,240	£1,240	£1,160	£1,200
VFR	£115	£115	£115	£115

Source: PwC analysis

Table 13: Value added arising from the activities associated with international (non-EU) students at London HE institutions (2013/14), (£m) – total UK GVA by scenario

	Original	Scenario 1	Scenario 2	Scenario 3
Fees	£1,317	£1,212	£1,317	£1,265
Spending	£1,364	£1,364	£1,275	£1,319
VFR	£121	£121	£121	£121
Total	£2,802	£2,697	£2,713	£2,705

Source: PwC analysis

Table 14: Jobs supported by the activities associated with international (non-EU) students at London HE institutions (2013/14) – Total jobs by scenario

	Original	Scenario 1	Scenario 2	Scenario 3
Fees	32,800	30,200	32,800	31,500
Spending	33,200	33,200	31,000	32,100
VFR	3,200	3,200	3,200	3,200
Total	69,200	66,600	67,000	66,800

Source: PwC analysis

5.2.2 After studies

5.2.2.1 Approach and methodology

HESA's university leaver's survey collects data on the proportion of London's international students who remain in London after graduation. However, the survey only covers EU domiciled students. For the purposes of our analysis we investigate the survey data collected by PwC and London First. The Survey provides insights into the plans and intentions of international students when they begin their studies including whether they plan to stay in the UK to work and, if so, how long they plan to stay.

In addition, the alumni survey provides insights into what sectors international students enter and how much they earn when they enter the UK labour market after graduation.

We analyse separately the responses of current students and alumni. We find that both sets of Survey responses are similar and, therefore, take an average when similar questions are answered by both students and alumni. In conducting our analysis, we disregard London universities for which we have less than 25 responses in the Survey to avoid potential bias in our results.

Following our examination of the Survey results, we estimate the number of international students entering the London labour market every year using data on the number of international students in London HE institutions provided by HESA. We apply three key assumptions:

- For the purposes of this analysis, we assume that our Survey data is representative of the international student population in London and thus we apply the retention shares estimated using our Survey to the HESA data on the number of international students.
- We assume that all students attending a full-time (part-time) postgraduate degree are doing a one-year course (two year course).
- In a similar way, we assume that all full-time (part-time) undergraduate students attend a three-year (six-year) course.

In this way we estimate the total number of international, UK and other EU students graduating each year. Applying the retention rate estimated using our Survey results; we estimate the number of international graduates who stay in the UK to enter the labour market after graduation.³⁴ Using the appropriate tax rate, we estimate their expected annual tax contribution to the Exchequer as a result of their employment.

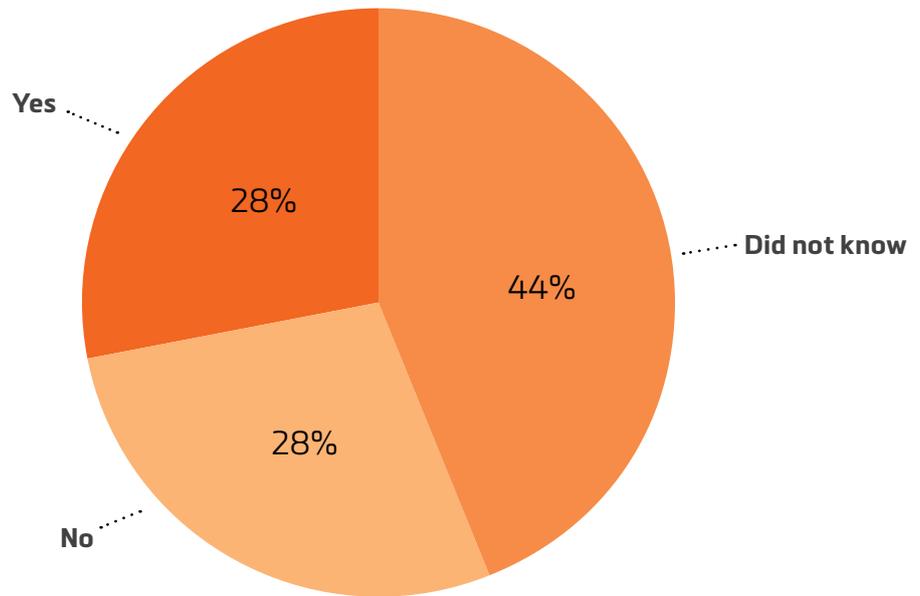
5.2.2.2 Results

Our Survey responses suggest that, at the start of their studies, an estimated 25% of current students intended to remain in the UK after finishing their studies, 33% were undecided and 42% did not plan to remain in the UK (see Figure 9). In addition to their intentions at the start of their studies, current students were also asked where they currently (at the time of the survey, i.e. while studying) plan to live after their studies in the UK; around 37% planned to live in the UK after their studies finish, 45% intend to return to their home country and 18% intend to live in a different country (see Figure 11). Unsurprisingly student intentions at the start of their studies and while they are studying are similar with around a third planning to remain in the UK at the start of their studies as well as during their studies. Slightly less than half (i.e. 45%) of students planning to live in the UK intended to stay more than five years. Therefore, we estimate that 16% of international students, in starting their studies in the UK, intended to remain in the country for more than five years.

³⁴ The results in this section are based on the assumption that the survey sample is representative of the total population of international students in London. Given the small sample size, the figures should be interpreted only in terms of the potential magnitude they picture.

Figure 7: Intentions to remain in the UK at the start of students' studies in the UK, Current students

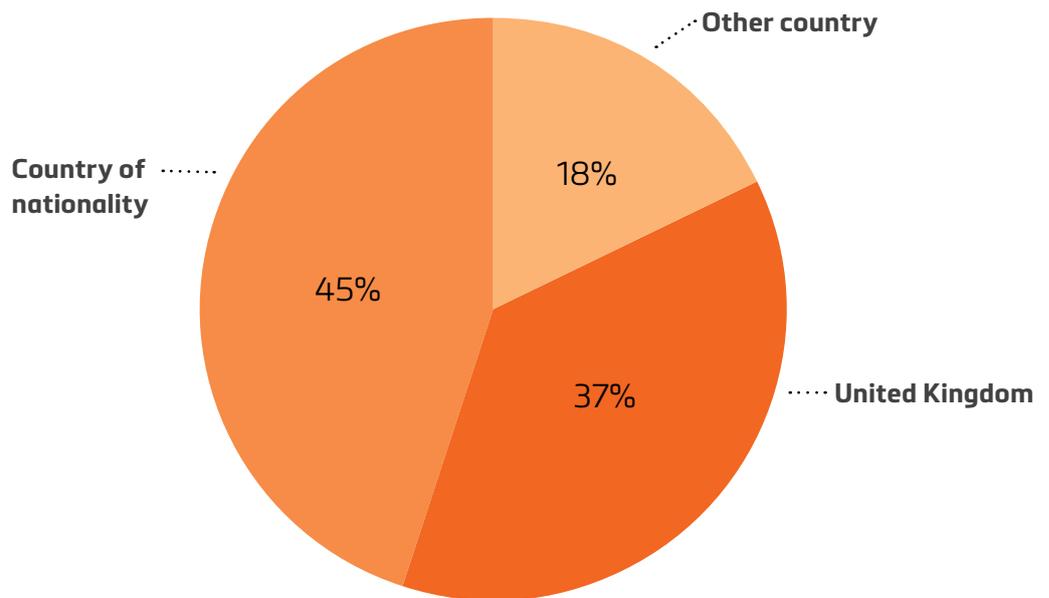
"At the start of your studies, did you intend to remain in the UK after you had finished studying?" (Students and Alumni)



Source: PwC analysis & London First/PwC survey

Figure 8: Intentions to remain in the UK during studies in the UK, Current students

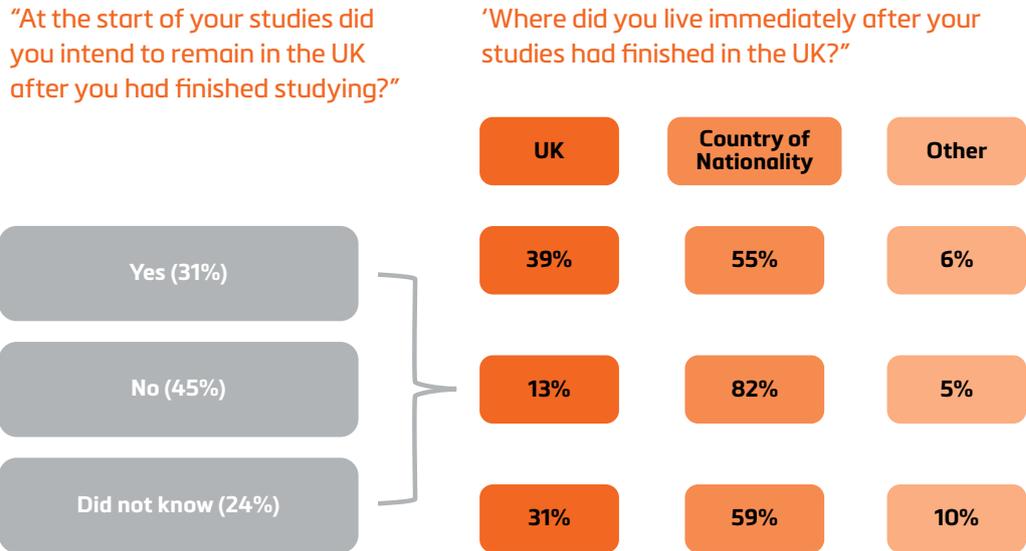
"Where do you plan to live immediately after your studies have finished in the UK?" (Students)



Source: PwC analysis & London First/PwC survey

This picture changes, however, when we examine the response of the alumni surveyed who were asked whether they actually stayed in the UK after graduation. We look at alumni responding "Yes", "No", "Did not know" to whether, at the start of their studies, they intended to remain in the UK and compare their responses to whether they lived in the UK immediately following their studies. As can be seen in Figure 9, only a proportion (39%) of those intending to remain in the UK at the beginning of their studies actually did immediately after their studies, with the rest going back to live in their country of nationality (55%) or other countries (6%). However, it is also evident that those intending to stay are more than twice as likely to have stayed as those not intending to stay (39% compared to 13% stated they actually lived in the UK immediately after completing their studies). This illustrates that intentions and expectations at the beginning of international students' studies in the UK often do not materialise and differ with the actual situation.

Figure 10: Intention to remain in the UK – intentions at the start of UK studies vs. current situation

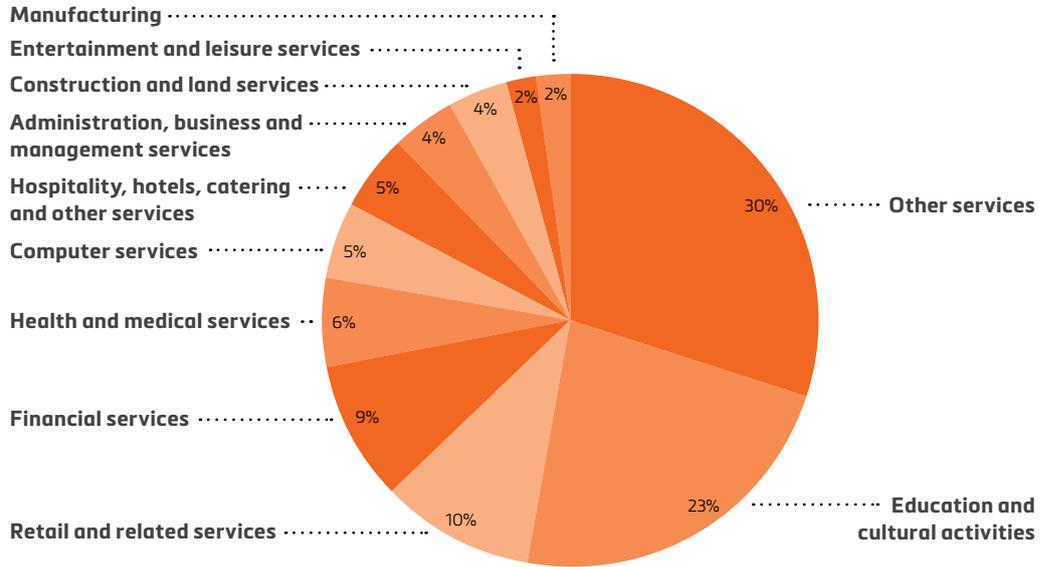


Source: PwC analysis & London First/PwC survey

As described above, even though 31% of the alumni surveyed indicated that they intended to stay in the UK at the start of their studies, only an estimated 12% stayed in the UK immediately following their studies (i.e. 39% of the 31% intending to remain in the UK after their studies actually stayed). Therefore, to approximate the share of students who actually stay in the UK and find employment, we assume that the surveyed alumni that lived in the UK immediately after their studies are representative of the population of international students in London.

We investigate data on alumni responding that they lived in the UK following their studies (12% of students) and alumni responding that they currently work in the UK (11%). Our Survey results are slightly different but provide an overall picture of labour market participation. On average, international students that lived in the UK immediately following their studies earned £15,000 per year with most students working in the "Education and cultural activities" sector (23%), the "Retail and related services" sector (10%), the "Financial Services" sector (9%) and the "Health and medical services" (6%) (see Figure 11).

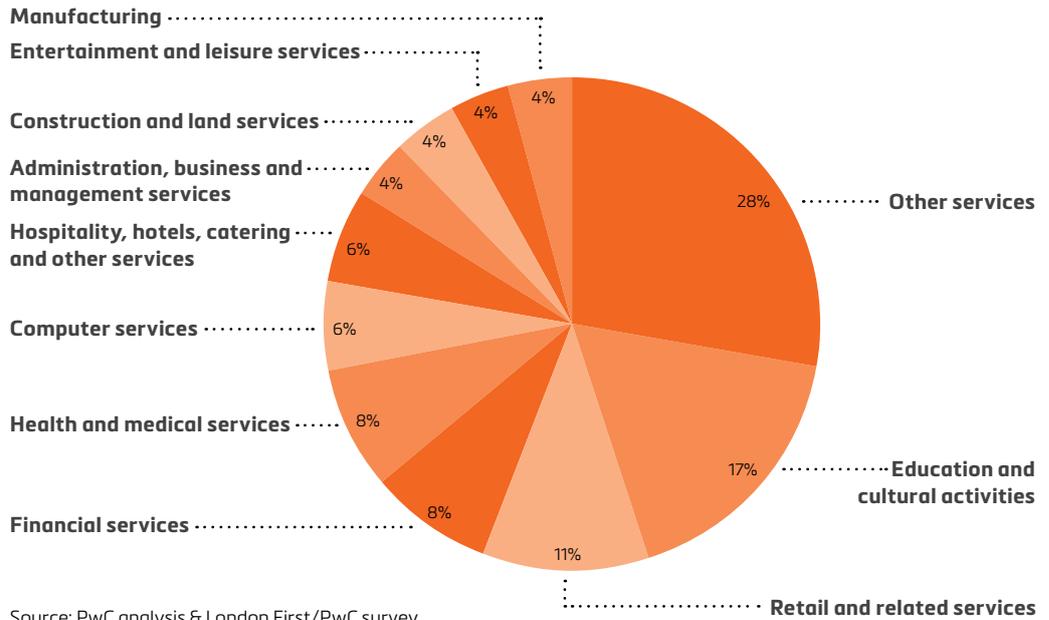
Figure 11: Main sectors of employment of international students that worked in the UK following their studies



Source: PwC analysis & London First/PwC survey

Replicating the analysis for alumni who currently work in the UK we get an estimated average annual salary of £22,800. The slightly higher estimate may mask more years of experience as well as inflation adjustments. The majority of alumni currently working in the UK are employed in the "Education and cultural activities" sector (17%), the "Financial Services" sector (11%), the "Construction and land services" (8%) and the "Retail and related services" sector (8%) (see Figure 12).

Figure 12: Main sectors of employment of international students currently working in the UK



Source: PwC analysis & London First/PwC survey

Our analysis indicates that a total of around 5,000 international students entered the UK labour market in 2014 (i.e. 12% of around 43,000 graduating in 2014).³⁵ This represents less than 3% of the total number of students graduating from London HE institutions and entering the UK labour market.³⁶ Assuming an average annual salary of around £19,000³⁷, a £9,440 personal allowance and a 20% income tax rate, each international student working in the UK is expected to contribute £1,900 per year to the Exchequer. Multiplying this by the estimated total number of international students joining the UK labour market in 2014, we estimate that the 5,000 students entering the UK labour market were expected to contribute around £10 million to the Exchequer via income tax.

We also estimate the NI contribution that international graduates and their employers are expected to make while participating in the UK labour market.³⁸ As above, assuming an average annual salary of around £19,000, a NI threshold of £5,676, a NI employee rate of 12% and a NI employer rate of 13.8%, we estimate that each international graduate working in the UK will contribute £3,400 per year on average in NI contributions; around £1,800 from employer NI contributions and around £1,600 from employee NI contributions. Therefore, the estimated 5,000 international students that entered the UK labour market in 2014 are expected to contribute £18 million per year in NI contributions, both employer and employee.

The impact of international students' labour market participation in the UK, both during their studies and post-graduation, is a controversial topic with mixed evidence. Given data available, it is not possible to identify whether the relevant international students have "displaced" members of the domestic workforce (i.e. UK-nationals living in London or elsewhere in the UK but willing to work in London). Theoretically, an increase in the labour supply should reduce the average wages for the domestic population, although, empirically, the evidence remains mixed. Moreover, from the perspective of the employer, the impact is positive since the increase in labour supply is expected to enable better job matching and, therefore, improve productivity.

Our estimates suggest that the total number of international students entering the labour market in the UK represents just 3% of the total number of students graduating from university and entering the labour market. This implies that these students represent a small share of total employment in London and, thus, their potential to displace domestic workers is limited. Due to data limitations, however, we will not expand further the analysis of the impact on the labour market. However, the labour market impact of international students working while studying or post-graduating is important and should be further investigated.

35. Please note that this analysis is based on a series of assumptions including the duration of postgraduate and undergraduate studies and figures should be interpreted with caution.

36. This is an overestimate since, in our approach assumes that all students graduating from London universities will enter the UK labour market.

37. This is estimated taking the average between the average annual salary of alumni indicating they worked in the UK following their studies and the average annual salary of alumni currently working in the UK.

38. National Insurance is calculated on gross earnings (before tax or pension deductions) above the earnings threshold. For 2013-14 the Class 1 (contributions on salary) National Insurance threshold was £5,676 a year (£473 a month). The NI rate for employee's contribution was 12% on earnings between £5,676 and £41,448 and the rate for employers contribution was 13.8%.

5.3 Other wider economic benefits

In Section 3 we investigated the short term impacts of international students on the UK and London economies including tuition fees paid by students, subsistence spending and spending of friends and relatives visiting students in the UK while they are studying. International students can have wider economic benefits to the UK economy materialising in the long term. These include benefits from:

- Increased tourism in the future.
- Additional exports of higher education services in the future as alumni promote the UK as a place of study in their home countries.
- Increased influence and, therefore, improved international relations and trade with the UK.
- Increased innovation through international collaboration in research and education.
- Other wider economic benefits such as professional networks, increased trust and understanding of cultural and political context.

In Section 2 we examined survey responses to identify the main reasons international students come to study in the UK. Around 60% of current students and alumni suggested that their experience of studying in the UK has made them more likely to do business in the UK in the future. The UK has strong soft power assets and attractive characteristics that contribute to the large number of students choosing the UK as their place of study. Alumni retain friends and professional networks made during their studies in the UK; this offers the potential to do business and conduct international transactions that will bring economic benefit to the UK. In this report, we do not explicitly consider the soft power argument regarding the long-term benefits international students can bring to the UK economy but we note its potential importance and an existing large literature that examines its impact.³⁹ UK universities alumni across the world have the potential to act as the link between their home country and the UK and bring in economic benefits such those discussed above.

39. Soft power is a key issue that the UK Government has examined. Some relevant reports on this issue are:

1. BIS Research Paper, *The Wider Benefits of International Higher Education in the UK*, September 2013
2. Lords Select Committee, *The Committee on Soft Power and the UK's Influence*, May 2013.



6 Views of the UK immigration system

6.1 Introduction

There were 310,195 international students in UK Higher Education (HE) Institutions in the academic year 2013/14. Of these, 67,405 were enrolled in HE institutions in London, representing 18% of the total student population (UK, other EU and non-EU) in London HE institutions. This implies that one in five students in London is a national of a country outside the EU and, therefore, requires a visa to study and live in the UK. In comparison, other EU students that commonly do not require a visa to study and live in the UK represent only 9% of the total student population in London HE institutions.

The estimated net benefit of international students in the London and UK economies during the 2013/14 academic year is £2.3 billion with a net direct contribution to UK GDP of £0.9 million.⁴⁰ International students in London were estimated to support a total of around 69,200 jobs. Of these, around 42,700 were generated directly by the spending of students and their visitors in London.

Overall, international students represent a significant portion of students in London and have a net positive impact in the London and UK economies.

In this section, we describe the views international students have of the UK immigration system. We also explore how different views on the immigration system have an effect on the students' experience while studying in the UK.

6.2 Approach and methodology

To examine international students' views of the UK immigration system we use data from the Survey.⁴¹ Students and alumni were asked about their current immigration status, their status if they stayed in the UK after graduating, how the UK immigration system affected their experience while studying and their views on how welcome they felt in the UK during their studies. Students and alumni were also asked to provide any comments on the UK immigration system. We analysed their responses to highlight any common issues and comments on the system.

6.3 Results

Our survey results indicate that more than 80% of international students had a Tier 4 (General) student visa while studying and around 3% had a variety of Tier 1 and 2 visas such as Entrepreneur, Exceptional Talent, Graduate Entrepreneur, Investor, Post Study Work or General Tier 1 and 2 visas. Moreover, approximately 2% responded that they had "indefinite leave to remain" (1%) and "dependant visa" (1%) immigration status while studying in the UK. Of the remaining 12%, around 6% held "other" types of visas, 4% did not know their immigration status whilst studying and 2% indicated "UK Ancestry" as their immigration status.

40. The net direct contribution to UK GDP refers to the sum of short-term direct benefits estimated and defined in Section 3 minus the costs of use of public services as estimated in Section 4.2. Total net contribution to UK GDP includes the direct, indirect and induced benefits of international students as estimated in Section 3 subtracting as above the cost due to the use of public services.

41. In conducting our analysis, we disregard London universities for which we have less than 25 survey responses to avoid potential small sample bias.

The majority of students (76%) felt welcome during their studies in the UK. Of the students that agreed with the statement that they felt welcome whilst studying in the UK, on average, more than 90% would recommend studying in the UK to their friends and family. Conversely, of those students that disagreed or were uncertain as to whether they felt welcome during their studies in the UK, only 30% indicated that they would recommend the UK as a place of study to friends and relatives. As described in Section 2 a recommendation from a friend or relative is one of the most commonly cited reasons for studying in the UK. Below we explore further the correlation between students' views on the immigration system (i.e. whether it negatively affected their experience) and whether they would recommend to friends and family the UK as a place to study).

More than one third of students indicated that the UK immigration processes and requirements negatively affected their experience of studying in the UK (see Figure 13 for commonly cited reasons). More specifically, the main parts of the UK immigration system most commonly cited as having had a negative effect on their experience were the following:

- Complexity of rules (more than one in two international students that had a negative experience with the UK immigration system indicating that this was one process that adversely affected them).
- Application fees (52%).
- Application documentation (48%).
- Work restrictions (39%).
- Processing time (36%).
- Ability to switch between visa categories (35%).
- Lack of Schengen area membership (34%).

In addition, of those that feel the UK immigration system negatively affected their experience while studying in the UK, 65% would recommend studying in the UK to their friends and family compared to 90% of those whose experience was not negatively affected by the UK immigration system.

Figure 13: Processes of UK immigration system affecting international students in London⁴²

54%	Complexity of rules
52%	Fees
48%	Application documentation requirements
39%	Work restrictions
36%	Processing times
35%	Ability to switch between visa categories
34%	Lack of Schengen Area membership
21%	University compliance procedures
21%	Police registration
20%	Restrictions on personal travel

Source: PwC analysis & London First/PwC survey

Finally, survey respondents were asked to comment on the UK immigration system. We have examined the student and alumni qualitative responses to highlight the key comments and key areas of concern regarding the UK immigration system. At the end of the survey, current students and alumni were asked whether they had any comments they would like to provide on the UK immigration system. This analysis is important since the immigration system may influence – positively or negatively – the attractiveness of the UK as a place to study. For example, permission to work in the UK post-graduation will attract international students who want to gain work experience and widen their network in the UK and then return to their home country to apply the skills acquired and use their UK networks. On the other hand, complex or expensive visa procedures as well as an inability to remain in the UK to gain work experience post-graduation may deter international students from choosing the UK as their place of study.

⁴². Alumni and current students indicating that the immigration system negatively affected their experience of studying in the UK were asked to indicate all areas/parts of the UK immigration system that affected them. These included: Application documentation requirements, Fees, Restrictions on personal travel, University compliance procedures, Complexity of rules, Biometric enrolment, Police registration, Work restrictions, Processing times, Ability to switch between visa categories, and Lack of Schengen Area membership.

The key areas of concern emerging from the Survey responses were:

- The closure of the Tier 1 (Post Study Work) visa route.
- A very short “grace period” between graduation and expiry of their student visa during which time students would need to find a job offer from an employer that could sponsor them under Tier 2 in order to remain in the UK.
- The complexity of the visa procedures – including too many changes in the visas available over recent years.

These concerns were raised in relation to the reasons students come to the UK to study. Studying in the UK is expected to improve a student's career prospects and many respondents commented that, as international students pay high tuition fees which is a big investment, they expect to be able to put their skills into practice and gain work experience in the UK after graduation. This is an important consideration for international students, since work experience in the UK, post-graduation, allows them to widen their skill set and their networks and improve employability opportunities. The knowledge acquired in the UK, both via formal education as well as via work experience, is significant for when a student returns to their home country to enter the labour market and is an influential factor in their choice of destination for study.

Appendix A. Survey methodology

A.1 Introduction

Throughout our analysis we use data from a survey jointly conducted by London First and PwC. We collected responses to the Survey from current students and alumni. The Survey asked respondents for information about their nationality and immigration status as well as information on their studies (i.e. the institutions they attended, the level of qualification sought, methods of transport etc.). Finally, the Survey asked about their labour market participation during their studies as well as post-graduation.

A.2 Sample

The Survey was conducted with two different sample groups; current students and alumni of London-based universities, a number of whom are members of the London Universities International Partnership (LUIP). There were 883 responses from alumni; around 75% of respondents had a nationality outside the EU. There were 469 responses from current students; more than 85% of respondents were identified as international students (non-EU).

A.3 Respondent characteristics

A.3.1 Nationality

International students in the Survey come from around 70 countries. The main countries represented in the Survey samples are the United States (23%), China (8%), India (6%), Brazil (4%) and Malaysia (4%). According to HESA data, the top-10 countries of origin of international students in 2013/14 include China (29%), India (6%), Malaysia (5%) and the United States (5%). Therefore, the Survey respondents cover the major education "exporting" countries.

A.3.2 Immigration status

The majority of international students held a Tier 4 Student visa with less than 2% holding a Tier 1 visa and 2% holding a dependent visa or an indefinite leave to remain visa.

Of the alumni that stayed in the UK to work after their studies, the majority held Tier 4 visas.

A.3.3 Purpose of study

As described in Section 2, the majority of students chose the UK, and especially London, as their place to study for a variety of reasons including the quality of education, the attraction of London as a social and cultural centre, the English speaking education as well as the reputation of London's universities. In addition, over two thirds of the students believe that studying in the UK has improved their career prospects more than if they had studied in a different country.

More than half of alumni respondents (54%) had studied for a postgraduate qualification, 44% towards an undergraduate degree and the rest had attended a different type of qualification such as an exchange programme. On the other hand, more than half of current students (54%) were studying towards an undergraduate qualification, 44% towards a postgraduate qualification and the rest towards a different qualification.

A.3.4 Location of study

The Survey covered students from 10 out of 39 London HEFCE universities in the academic year 2013/14 (see Figure 14).

Figure 14: London HEFCE universities covered in the Survey

Higher Education (HE) Provider	Alumni (number of responses)	Students (number of responses)
University College London (UCL)	172	112
Roehampton	133	34
School of Oriental and African Studies (SOAS)	62	92
Kingston University	402	130
Goldsmiths University	22	19
Trinity Laban	–	–
Royal Veterinary College	1	60
St George's Hospital Medical School	7	18
UCL Institute of Education	3	–
London South Bank University	79	–
Other university	2	2
Total	883	467

Source: PwC analysis & London First/PwC survey

A.3.5 Where do respondents live

Students were asked about the areas they lived while studying in the UK. A large proportion of respondents identified Kingston upon Thames as their place of residence during their studies. This can be explained by the fact that a significant proportion of students responding to the Survey attended Kingston University. Other popular areas of residence include Camden, Wandsworth, Islington and City of London. As expected, the areas students lived during their studies are closely correlated with the location of their universities.

Appendix B. London Higher Education Institutions

Table 15 lists the 39 Higher Education Institutions (HEIs) in London covered by this analysis.

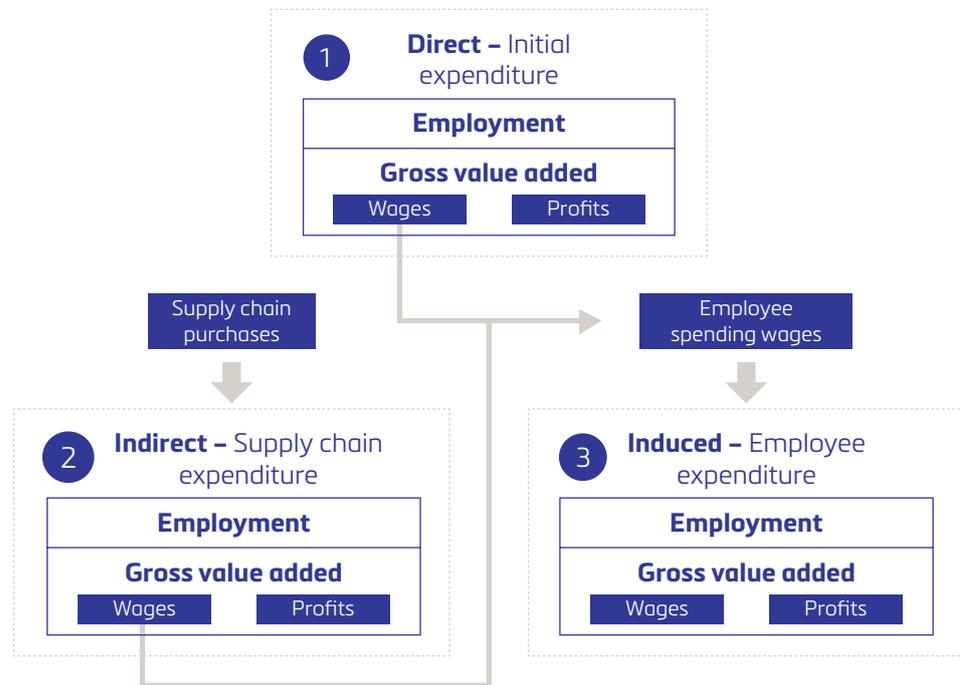
Table 15: London Higher Education institutions (HEIs) – Source: HESA, 2013-14

Birkbeck College London	South Bank University
Brunel University London	London School of Economics and Political Science
The Institute of Cancer Research	London School of Hygiene and Tropical Medicine
Central School of Speech and Drama	Middlesex University
The City University	Queen Mary University of London
Conservatoire for Dance and Drama	Ravensbourne
Courtauld Institute of Art	Roehampton University
The University of East London	Rose Bruford College
Goldsmiths College	Royal Academy of Music
The University of Greenwich	Royal College of Art
Guildhall School of Music and Drama	Royal College of Music
Heythrop College	The Royal Veterinary College
Imperial College of Science, Technology and Medicine	St George's Hospital Medical School
UCL Institute of Education	St Mary's University, Twickenham
King's College London	The School of Oriental and African Studies
Kingston University	Trinity Laban Conservatoire of Music and Dance
University of the Arts, London	University College London
London Business School	The University of West London
University of London (Institutes and activities)	The University of Westminster
London Metropolitan University	

Appendix C. Input-output methodology

The Input-Output (IO) table describes how products (and primary inputs) are used to produce further products and to satisfy final demand. IO tables are commonly used in economic impact assessment studies because they allow us to trace the effects of an increase in final demand through the sectors of the economy, and therefore quantify its impact on economic indicators such as output and employment. IO tables are constructed by combining and transforming two important data sources – The Use Table and The Supply Table. The Use Table provides data on the inputs consumed by each sector of the economy, while The Supply Table provides data on the outputs produced by each sector of the economy.

Figure 15: Why we use input-output analysis



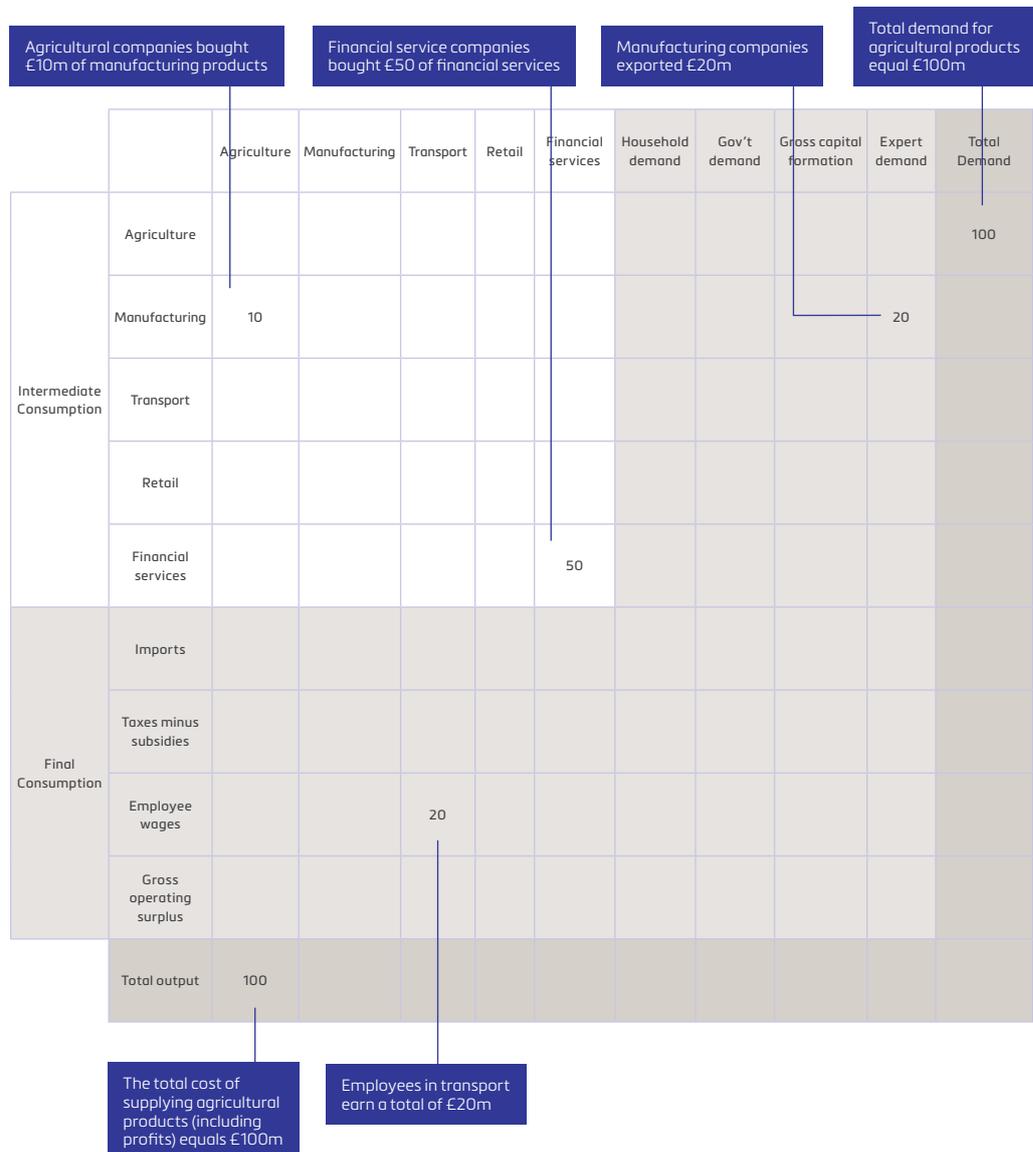
Indirect and induced economic contributions are estimated using an Input-Output model. This enables us to understand how sectors relate to each other. On this basis we estimate how activity in one sector (e.g. spending in one sector) stimulates economic activity elsewhere in the economy.

The Input-Output table provides information on what the typical business in the supplier's sector requires for producing one unit of output. Equally, we can model the supplier's input requirements from other sectors to produce its own unit of output. In this way we can trace back the input requirements through the entire supply chain and calculate the total value of production stimulated. This process of one sector stimulating economic activity in other sectors is referred to as the multiplier effect.

In addition to the above, an Input-Output table provides data on the share of revenue that constitutes profit and wages for each sector. We can apply this ratio to the total production value stimulated and hence estimate the total gross value added in the supply chain by sector associated to this. Additional statistics on employment provide information on the number of people that work in any particular sector. As we know the output stimulated in each sector, we can estimate the production value to job ratio. We can then apply this to the total production value stimulated in the supply chain. This allows us to estimate the number of jobs supported in the supply chain – the indirect employment.

These steps get repeated for calculating the induced contribution, but through using wage data to estimate how much production is stimulated in the supply chain that supports the products employees buy, e.g. accommodation, food and entertainment.

Figure 13: A simplified version of an Input-Output table, the basis for an Input-Output model



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