

# The economic impact of international students

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## Introduction

**Every year, international students contribute with between 3,5 and 4 billion SEK to Swedish economy, making the education sector an important export industry. The retention of international students in Sweden, after their graduation, contributes to the supply of competence to the Swedish business community.**

The Swedish Institute (SI) is a public agency and expert authority on the image of Sweden globally. The SI works towards a better understanding of how Sweden is relevant to various international target groups, through research and analysis. One of SI's missions is to increase the attractiveness of Sweden as a knowledge-nation and study destination for students, researchers, and other talents.

In many parts of the world, education is a significant service export industry. In Sweden, it is not as known as for example in Australia, where it is the third largest service export industry. In 2011, following Sweden's introduction of tuition fees for students outside of the European Economic Area, more attention is being given to internationalisation of higher education and how to attract talent to Sweden.

This study was made with the intention to better understand the impact of international students in Swedish economy after the implementation of tuition fees. It is only with this report, that Sweden receives a comprehensive overview of the role of education in Sweden's economy. The study shows that international students contribute between 3.5 and 4 billion SEK annually (approximately EUR 322 and 370 million), making the education industry a sector comparable with Sweden's music export. The so called "free-mover students" (students who study abroad on their own initiative and not as a part of a study abroad programme or bilateral agreement) stand for 90 percent of this contribution, or 3.2 and 3.6 billion SEK.

Aside from the pure economic impact there are several other benefits that international students who establish themselves in the Swedish labour market bring. For example, they provide important competences in areas where Sweden has a shortage, which, in turn, contributes to increasing Sweden's competitiveness.

Furthermore, the study shows that the contribution of international students who have graduated within the last decade is significant. Areas of contribution to the Swedish economy include educated labour supply, income tax revenue and potential consumption. Between 2013 to 2021, this group contributed to the Swedish labour market with several thousand well-educated people and, on average, generated between 700 and 1,300 million SEK in income tax revenue alone. Their potential consumption is estimated to be, on average, between 800 and 1,400 million SEK annually. In addition, one can assume that international students who establish themselves on the labour market also contribute to an increasing demand of labour force through the multiplier effect of their consumption and income tax.

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The study shows that the positive impact of international students is far greater than solely being financial. International students contribute to a more enriched culture, an improved innovation capacity and talent acquisition, which in turn contribute to synergies in other parts of the labour market. Swedish higher education institutions as well as Swedish students benefit from international students, through an increased diversity and new perspectives. They contribute, in extension, to an increased quality of education.

In conclusion our findings show the importance of attracting more international students to Sweden. It also highlights the need for concrete efforts to retain international students who graduate from Swedish universities to contribute with highly educated competences for Swedish companies.

Stockholm July 2022.

Madeleine Sjöstedt

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## Background

The Swedish Institute commissioned the study *The Economic Impact of International Students* in 2021 and it was implemented by the consulting firm WSP. The study was carried out following the mission of a collaboration platform established between SI and key actors in Swedish higher education: the Swedish Council for Higher Education, the Swedish Higher Education Authority, Swedish Research Council and Vinnova – Sweden’s innovation agency. Their main aim is to facilitate further internationalisation of higher education.

# ECONOMIC IMPACT OF INTERNATIONAL STUDENTS - THE CASE OF SWEDEN

2022-06-23



# ECONOMIC IMPACT OF INTERNATIONAL STUDENTS -

The case of Sweden

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## SUMMARY

Recruitment of international students, or education exports as it is called, is a significant export industry in many countries. Even though thousands of students from other countries come to Sweden for studying each year there is no reliable data on the economic impact these international students have on the Swedish economy. Prior to the Covid-19 pandemic, approximately 40 000 international students studied in Sweden each academic year.

In this study, the economic impact of international students, since the introduction of tuition fees for third party countries was introduced in 2011/12 and up to 2020/21, is estimated. Based on official statistics on international student mobility, information on tuition fees and average cost of living per school year for international students, two scenarios of economic effects are estimated. The base scenario is based on UKÄ official statistics on the number of incoming international students and in a conservative scenario the numbers of international incoming students are somewhat reduced to reach a more conservative estimate. The conservative scenario generates an economic outfall that on average is 16 percentage points lower than the economic outfall in the base scenario each year.

The economic impact of international students during the school year 2020/21 can be summarized as:

- International students' impact on the Swedish economy amounted to between 3 500 and 4 000 million SEK depending on scenario
- Freemover students (paying and non-paying) accounted for 90 percent of this impact, that is 3 200-3 600 million SEK depending on scenario
- The economic impact of paying freemover students accounted for 1 900 million SEK

Approximately 30 percent of the economic impact is made up of tuition fees and the rest is due to the international students' consumption on housing, food, entertainment, travel etc. On average, an international student contributed with around 140 000 SEK to the Swedish economy during the school year 2020/21. The corresponding contribution of a paying freemover student was 148 000 SEK while a non-paying freemover and an exchange student contributed with 97 000 SEK.

Furthermore, this study tries to estimate the economic impact of international students that have graduated from a Swedish university and thereafter working in Sweden. The analysis is delimited to those international students graduating from a Swedish university during the period 2012-2020 and then estimating the economic impact for those of them working in Sweden during the period 2013-2021. Two alternative estimations are carried out. The first one is based on all international students graduating during the period 2012-2020. The other alternative is based on international students earning a master's degree during the period 2012-2020.

In summary, the economic impact of international students graduating from a Swedish university during the period 2012-2020 and staying working in Sweden can be summarized as:

- Contribution with trained labor in the Swedish labor market
  - 25 000-44 000 in total annual workforce (period 2013-2021)
  - On average 2 800-4 800 per year
- Generation of income tax revenue
  - Between 6 300-11 000 million SEK for (period 2013-2021)
  - On average 700-1 300 million SEK per year
- Potential consumption subsidy
  - On average 800-1 400 million SEK per year

To conclude, it is evident that international students studying and working in Sweden have a significant economic impact on the Swedish economy. And, there is a strong potential of increased economic effects and increased labor market supply if more students were able to stay and start their professional career in Sweden. With the future skills supply problems that Sweden and many other countries are expected to face, every addition of skilled labor would help alleviate future labor shortages.

# INTRODUCTION

Education is a growing sector for many countries' exports. In Australia, education exports are among its strongest export products and in USA education service exports was ranked 6<sup>th</sup> among service exports in 2020.<sup>1</sup>

Svenska Institutet (SI) works for attracting international students to Sweden and to facilitate their entry into working life. Traditionally, SI has focused on communication efforts to increase the inflow of international students coming to Sweden. In 2021, SI has started working on how to increase the proportion of international students who stay and work in Sweden (Talent retention).

Recruitment of international students has several benefits for Sweden as a country in addition to increased quality of education. International students studying in Sweden benefit the Swedish economy by paying tuition fees, paying for their living expenses, and sometimes even paying taxes during their studies. The international students who stay and work in Sweden continue to contribute in various ways, for example by paying taxes, paying living expenses, and perhaps most importantly, contribute to the increase of Sweden's competitiveness through their competencies. In addition, the recruitment of international students, or education exports as it is called, is a significant export industry in many countries. The scope may not be as large in Sweden as for instance in Australia and USA but probably has a larger economic significance than many believe.

Even though thousands of students from other countries come to Sweden for studying each year there is no reliable data on the economic impact these international students have on the Swedish economy. In this study, the economic impact of international students, since the introduction of tuition fees for third party countries was introduced in 2011/12 and up to 2020/21, is estimated. This is done based on official statistics on international student mobility and information on tuition fees and expected cost of living for international students in Sweden.

Furthermore, this study tries to estimate the economic impact of international students graduating from a Swedish university and then working in Sweden. The analysis is delimited to those international students graduating from a Swedish university during the period 2012-2020 and then estimating the economic impact for those of them working in Sweden during the period 2013-2021. The estimation is based on official statistics on completed degrees and master's degrees by international students and information on the share of international students staying in Sweden after graduation and what share of these students are able to establish themselves on the Swedish labor market.

The results of economic impact of international students in Sweden presented in this study are estimated based on official statistics combined with information from surveys and assumptions on e.g. cost of living and level of salary. The estimation of the economic impact is presented as

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<sup>1</sup> <https://www.trade.gov/education-service-exports>

different scenarios. These serve to identify in what range the economic impact of international students can be assumed to lie within.

# ECONOMIC IMPACT OF INTERNATIONAL STUDENTS

In this chapter the economic impact of international students in Sweden is estimated. The period that is covered is from the school year 2011/12, when tuition fees were introduced for third party country students, up to the school year 2020/2021. Two alternative outcomes or scenarios are presented. A base scenario and a conservative scenario where the number of students according to UKÄ statistics are reduced somewhat. But the chapter begins with a brief delineation of different categories of students within international student mobility.

## *International student mobility*

International students that study in Sweden can be divided in different categories; *international exchange students* and *freemover students*. In order to make the below data and analysis as clear and pedagogical as possible, we begin the chapter by first defining these categories.

To begin with, international exchange students are students who are admitted to a higher education institution in another country but carries out part of the education at a Swedish university within the framework of an exchange agreement.

Secondly, freemover students do not participate in exchange programs. Instead, they have arranged their studies at a Swedish university on their own accord. It is most common that the freemover students study a general program at the advanced level. This was the case for 58 percent of the freemover students in 2015/16.<sup>2</sup> More specifically, freemover students refers to:

- Individuals who have been granted a residence permit for studies and where the decision on residence permit has been taken less than two years before initiating the studies.
- Foreign-born individuals who immigrated less than six months before initiating the studies.
- Other individuals who do not have information regarding the Swedish social security number in the university's administration systems.

In addition, freemover students can be divided into paying and non-paying freemovers. For each applicant, the fee status must be determined. That is, if the applicant is liable for tax or exempt from tax. In most cases an individual is either liable or exempted from fees for both registration fee and tuition fee. Paying students are students who are liable for tuition fees and who have paid charge.<sup>3</sup>

Within the freemover category, students from third party countries outside EU, EES and Switzerland are included. However, certain exceptions from the

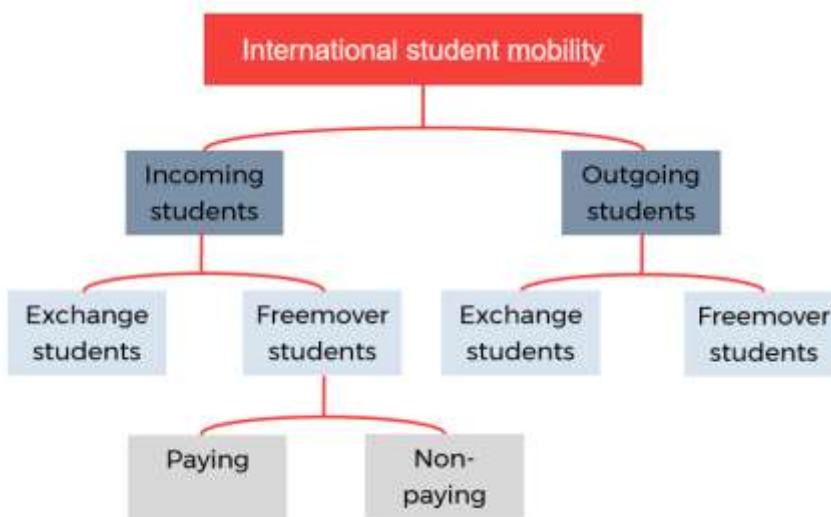
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<sup>2</sup> UKÄ, Etablering på arbetsmarknaden efter studier i högskolan, 2019.

<sup>3</sup> UKÄ delimits the students who are liable for tuition fees to freemover students who are liable for tuition fees according to regulation. This does not include students studying within the framework of certain international collaborations on undergraduate and advanced level, such as the former Erasmus Mundus program or the current joint master's program in Erasmus+. These are exchange students, although they sometimes pay a fee to a consortium

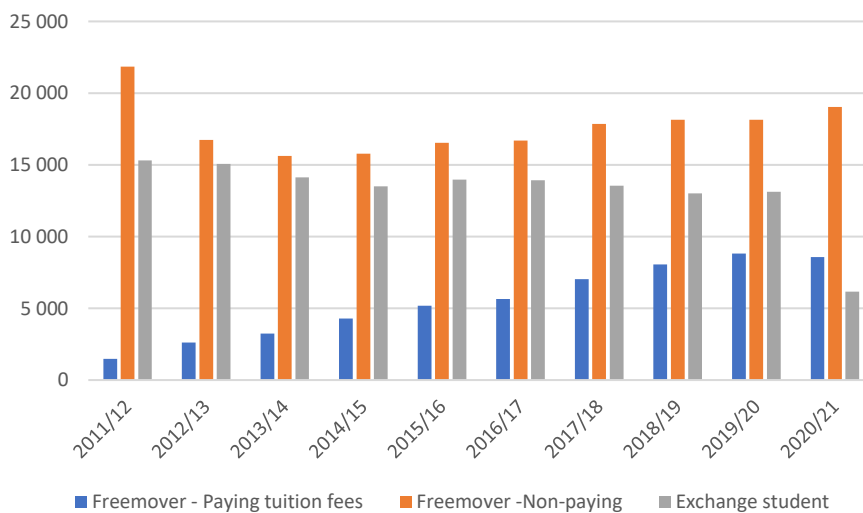
obligation to pay are made for individuals who are considered to have a strong connection to Sweden (such as residence permit).

Figure 1: Different groups of international students from a Swedish perspective



The economic impact of international students has been estimated by using the data on the number of international students by different types (exchange students as well as paying and non-paying freemovers) and adding tuition fees and cost of living during their stay in Sweden. Notably, there is one big change in the below figure that can be derived to 2020/21 when the Covid 19 pandemic obstructed international student mobility, which is evident in the decrease on incoming exchange students.

Figure 2: Number of international students in Sweden by type of student



Source: UKÄ's statistical database

Overall, there has been a steady increase in freemover students. Certainly, with regards to those who pay tuition fees, but also non-paying freemovers

after the initial decline in 2011/12. Moreover, exchange students have had a stable inflow between 13 000 to 15 000 each academic year.

### **Number of international students**

In this section the number of international students included in calculating the economic impact is presented. The result emanates from two scenarios, one base scenario and one conservative scenario. The latter sums up to a 20 percentage lower number of international students on average per year compared to the base scenario.

In Table 1 below the number of international students by type during the period 2011/12-2020/21 is listed. Prior to the Covid-19 pandemic, approximately 40 000 international students studied in Sweden each academic year. In the below table, data for exchange students is divided into incoming, outgoing, and net students. It is the net number of exchange students (incoming minus outgoing) for each academic year that has been used for the calculations. The reason for this is to account for the number of Swedish students participating in exchange programs abroad since they to some extent balance the economic impact from incoming exchange students.

*Table 1: Number of international students*

	Freemover students		Exchange students		
	Paying	Non-paying	Incoming	Outgoing	Net
2011/12	1 469	21 851	15 301	6 696	8 605
2012/13	2 622	16 731	15 074	6 948	8 126
2013/14	3 234	15 632	14 128	6 946	7 182
2014/15	4 293	15 785	13 511	7 178	6 333
2015/16	5 182	16 532	13 983	7 255	6 728
2016/17	5 660	16 693	13 938	7 108	6 830
2017/18	7 033	17 852	13 557	7 417	6 140
2018/19	8 053	18 141	13 004	7 714	5 290
2019/20	8 817	18 154	13 134	7 087	6 047
2020/21	8 579	19 030	6 162	1 823	4 339

Source: UKÄ

According to Statistics Sweden, remote studies average between 5 and 7 percent of the freemover students each year.<sup>4</sup> By subtracting this percentage of freemover students from non-paying freemover students the number of international students studying in Sweden each academic year is listed in Table 2 below. These are the data on freemover students and net exchange students that have been used in the base scenario for calculating the economic impact of international students in Sweden.

<sup>4</sup> Specific data ordered from Statistics Sweden.

Table 2: Number of students in the base scenario

	Freemover students		Exchange students		
	Paying	Non-paying	Incoming	Outgoing	Net
2011/12	1 469	20 698	15 301	6 696	8 605
2012/13	2 622	15 659	15 074	6 948	8 126
2013/14	3 234	14 611	14 128	6 946	7 182
2014/15	4 293	14 718	13 511	7 178	6 333
2015/16	5 182	15 348	13 983	7 255	6 728
2016/17	5 660	15 363	13 938	7 108	6 830
2017/18	7 033	16 424	13 557	7 417	6 140
2018/19	8 053	16 688	13 004	7 714	5 290
2019/20	8 817	16 591	13 134	7 087	6 047
2020/21	8 579	17 107	6 162	1 823	4 339

Note: Compared to Table 1, this data is reduced with the number of freemover students that study remotely.

Source: WSP based on UKÄ data.

The number of international students used for estimating the economic impact greatly affects the result since these numbers (see Table 2) are multiplied with the tuition fee (paying freemover-students) and the average cost of living or consumption (see Table 4 below).

To reach a more conservative figure of the economic impact international students have, a second scenario with a somewhat reduced number of international students has been created (see Table 3 below).

Moreover, the Swedish Institute mainly promotes university education carried out in English. Therefore, by excluding international students from the Nordic countries<sup>5</sup>, the number of international students is reduced. This since they theoretically would be able to participate in programs provided on Swedish. On average during the study year period 2011/12 to 2020/21, 14 percent of the non-paying freemover-students and 5 percent of the exchange students came from the Nordic countries.

The data on international students published by UKÄ is collected and compiled by Statistics Sweden. The number of international students is collected for each semester retroactively and compiled to annual or study year statistics. International students admitted to studies in Sweden but who decide to terminate their studies early on (during the first month approximately) or for different reasons does not attend are not included in the data on the number of international students. There may be study dropouts later in each semester that is not accounted for. But, since the data is based on a compilation that is carried out each semester, dropouts during the first semester does not affect the data during the second semester.

But since there is no information on dropouts from midterm a conservative way of handling this is to suppose a certain share of the students quit their studies each year. Therefore, to reach a conservative figure of the number of international students, a 10 percent reduction of non-paying freemover students and a 10 percent reduction on incoming exchange students has

<sup>5</sup> Denmark, Finland and Norway.



been included to get a lower number of international students studying in Sweden each year. In Table 3 below, the number of freemover and net exchange students used for calculating the economic impact in the conservative scenario is listed. Except for taking in to account a 10 percent reduction of both non-paying freemover students and incoming exchange students, these numbers also exclude non-paying freemover students and incoming exchange students from the Nordic countries.

In the conservative scenario the number of non-paying freemover students are on average 3 800 lower than in the base scenario per year. And the net number of exchange students are almost 2 000 fewer on average per year in the conservative scenario. Thus, in the conservative scenario the number of international students have on average been reduced with 5 800 students per academic year compared to the number of international students derived from the UKÄ official data.

*Table 3: Number of students in the conservative scenario*

	Freemover students		Exchange students		
	Paying	Non-paying	Incoming	Outgoing	Net
2011/12	1 469	16 786	12 914	6 696	6 218
2012/13	2 622	12 117	12 677	6 948	5 729
2013/14	3 234	12 580	11 986	6 946	5 040
2014/15	4 293	10 940	11 477	7 178	4 299
2015/16	5 182	11 336	11 920	7 255	4 665
2016/17	5 660	11 298	11 870	7 108	4 762
2017/18	7 033	11 999	11 597	7 417	4 180
2018/19	8 053	12 376	11 114	7 714	3 400
2019/20	8 817	12 406	11 254	7 087	4 167
2020/21	8 579	13 013	5 351	1 823	3 528

Note: Compared to Table 2, this data is reduced with international students from the Nordic countries plus a 10 percent reduction of non-paying freemover students and incoming exchange students.

Source: WSP estimation based on UKÄ data.

### **Tuition fees and cost of living for international students**

Tuition fees were introduced for freemover students from outside the EU/EES during the autumn semester 2011. This resulted in a sharp decline of freemover students for the school year 2011/12 compared to the years before. Since then, paying freemover students from outside the EU/EES has recovered and show an increasing trend in numbers during the last decade. Freemover students from countries within the EU/EES and exchange students were not included in the introduction of tuition fees and consequently the number of these types of students were not affected (see Figure 2 above).

Tuition fees varies between universities and field of study. UKÄ has based on the number of freemover students liable to paying tuition fees, at different universities and fields of study during the autumn semester 2011 and 2016,

calculated average tuition fees. The average figure is weighted and thus account for the students' choice of university and field of study.<sup>6</sup> The average tuition fee for paying freemover students accounted to 125 000 SEK in 2011 and 129 000 SEK in 2016. These are the tuition fees that have been used in this study. The smaller figure was applied up to the school year 2015/16 and since then the larger figure. The total tuition fees for each school year were then calculated by multiplying the average tuition fee by the number of freemover students liable to paying tuition fees.

The amount of Swedish student loans and study grants can be seen as indicative to what the cost of living for an international student is in Sweden. The Swedish Migration Agency also stipulates a minimum cost of living requirements for international students that have been granted residence permit for studies. This minimum cost of living requirement imply that an international student should have available means corresponding to at least 18 percent of the current price base amount (prisbasbelopp) per month for at least 10 months each year. This amount is a little bit lower than the Swedish student loans and study grants. In this study we have used the average of the two to calculate the amount each international student use to finance their cost of living during their stay in Sweden.

*Table 4: Average cost of living (SEK) per school year for international students*

School year	Study grant	Study loan	Grants and loan (A)	Cost of living requirement (B)	Average of A and B
2011/12	27 580	60 400	87 980	72 760	80 370
2012/13	28 120	61 600	89 720	74 800	82 260
2013/14	28 240	61 900	90 140	75 650	82 895
2014/15	28 240	66 520	94 760	79 920	87 340
2015/16	28 220	71 040	99 260	79 922	89 591
2016/17	28 320	71 280	99 600	79 740	89 670
2017/18	28 700	72 240	100 940	80 640	90 790
2018/19	32 000	73 600	105 600	81 900	93 750
2019/20	32 640	75 040	107 680	83 700	95 690
2020/21	33 020	75 920	108 940	85 140	97 040

Source: Study grants and loans from CSN. Cost of living requirement from the Swedish Migration Agency.

### **Estimated economic impact**

To estimate the economic impact international students have on the Swedish economy, the average cost of living from Table 4 above and the tuition fees (for freemover – paying) are multiplied by the number of the different type of international students in the base and the conservative scenario.

Figure 3 below shows the economic impact in million SEK during the period 2011/12 to 2020/21 for the two scenarios. The economic impact has

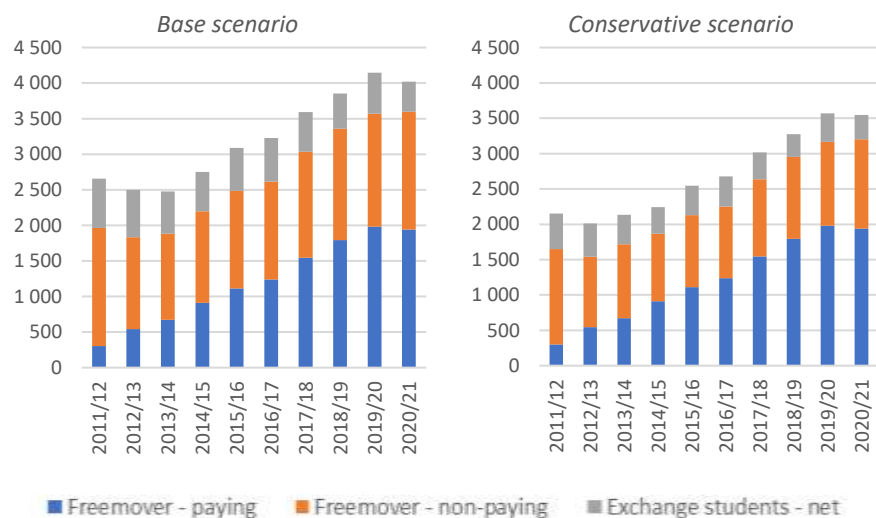
<sup>6</sup> UKÄ, *Kartläggning av studieavgifter – Redovisning av ett regeringsuppdrag*, Rapport 2017:2.

increased significantly during the examined period, more than 50 percent in the base scenario and more than 60 percent in the conservative scenario. The increased economic impact entirely depends on paying freemover students. Their contribution has gone from only 300 million SEK during the school year 2011/12 to amount more than 1 900 million SEK during the school year 2020/21. Ten years ago, this group of international students only contributed with approximately 11-14 percent of the total economic impact of international students. Today, paying freemovers stands for half of the total economic impact that international students have on the Swedish economy. This is explained by the increasing number of paying freemovers in Sweden during the period. In 2011/12, there were less than 1 500 students of this category in Sweden, in 2019/20 more than 8 800 paying freemovers were studying in Sweden and shows that the Swedish universities and the education they offer are attractive for students from third party countries.

The conservative scenario generates an economic outfall that on average is 16 percentage points lower than the economic outfall in the base scenario each year. In 2020/21 international students' economic impact to the Swedish economy amounted to between 3 500 and 4 000 million SEK depending on scenario. 90 percent of the economic impact international students had on the Swedish economy in 2020/21 can be attributed to the freemover students. In 2020/21 freemover students' economic impact on the Swedish economy amounted to between 3 200 and 3 600 million SEK depending on scenario. The paying freemovers stood for 1 900 million SEK. As a comparative example, the Swedish music export amounted to 2 700 million SEK in 2019.<sup>7</sup>

Approximately 30 percent of the economic impact is made up of tuition fees and the rest is due to the international students' consumption on housing, food, entertainment, travel etc.

Figure 3: Estimated economic impact (MSEK) of international students



<sup>7</sup> Musiksverige, *Musikbranschen i siffror – statistik för 2009–2020*, Rapport 2021.

On average, an international student contributed with around 140 000 SEK to the Swedish economy during the school year 2020/21. Looking at freemover students only, paying and non-paying, their contribution was on average 148 000 SEK during the school year 2020/21. Paying freemovers students' contribution was on average 226 000 SEK since these are paying tuition fees while non-paying freemovers and exchange students on average contributed with 97 000 SEK to the Swedish economy.

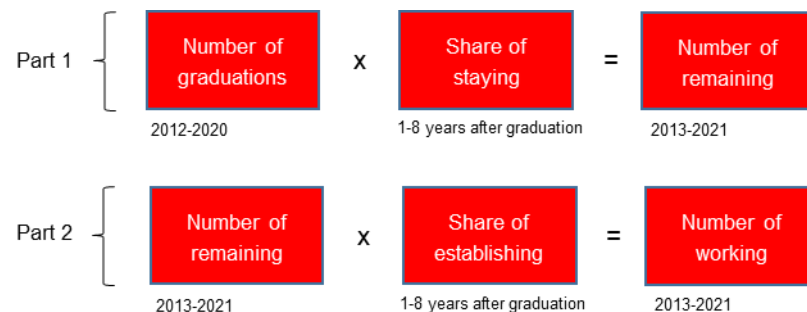
# ECONOMIC IMPACT OF INTERNATIONAL STUDENTS WORKING IN SWEDEN

This chapter aims at estimating the economic impact international students working in Sweden generate. The analysis is delimited to those international students graduating from a Swedish university during the period 2012-2020 and then estimating the economic impact for those of them working in Sweden during the period 2013-2021. Economic impact is here to be understood in terms of income generation and income tax revenue. Since the estimations are based on a delimited population, the accounted effects should be seen as a calculation example only.

## Methodology

The methodology or procedure for the estimations for this part of the study is two-folded. Firstly, by starting from the number of graduations by international students in Sweden for each year during the period 2012-2020 and applying a year specific share of staying in Sweden, the number of remaining international students for the period 2013-2021 can be calculated (part 1). Secondly, by applying year specific share of establishment on the Swedish labor market on the remaining international students from part 1, the number of those working may be estimated for each year during the period 2013-2021, (part 2).

Figure 4: Methodology for estimating effects



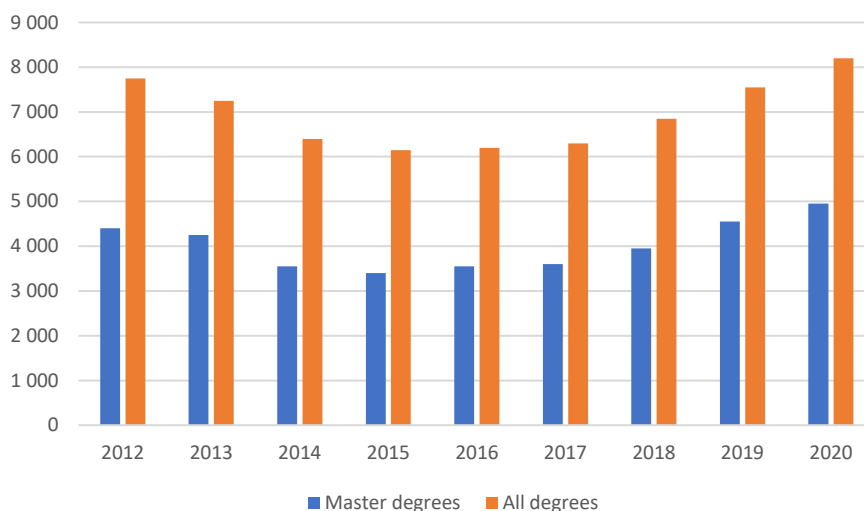
Two alternative estimations are carried out. The first one is based on all international students graduating during the period 2012-2020. The other alternative is based on international students earning a master's degree during the period 2012-2020. Thus, the effects are presented as an interval where those based on all degrees generates larger effects than those based on master's degrees only.

## International students staying in Sweden after graduation

During the period 2011/12 up to 2020/21 more than 70 000 degrees/exams have been passed by international students in Sweden. It corresponds to more than 10 percent of all degrees during the same period.

Looking at master's degrees specifically, international students stand for more than 40 percent of all degrees during the period 2011/12 up to 2020/21. Almost 41 000 international students graduated with a master's degree in Sweden during this period corresponding to more than 4 000 master's degrees per academic year. Figure 5 shows the total number of degrees and master's degrees produced by international students in Sweden during the period 2012-2020. The number of degrees per academic year is transformed to calendar year for technical reasons.<sup>8</sup>

*Figure 5: Completed degrees and master's degrees by international students during the period 2012-2020*



Source: UKÄ and WSP estimation.

In a study from UKÄ in 2019, they followed the populations of incoming students that took an exam during any of the three school years 2012/13, 2013/14 and 2014/15 to find out how many of each population had left Sweden by 2016.<sup>9</sup> They found out that 73 percent of the international students graduating in 2012/13 had left Sweden by 2016. The corresponding shares for the ones graduating in 2013/14 and 2014/5 where 73 and 69 percent.

Based on this information it is possible to make assumptions on how large share of the international students that are still based in Sweden one, two and three years after their exams. For the period 4-8 years after the exam own assumptions have been made.

<sup>8</sup> The number of degrees for the year 2012 is calculated as half of the degrees in 2011/12 and half of the degrees in 2012/13 and so forth.

<sup>9</sup> UKÄ, Etablering på arbetsmarknaden efter studier i högskolan, 2019.

**Table 5: Share of international students still in Sweden 1-8 years after their exams**

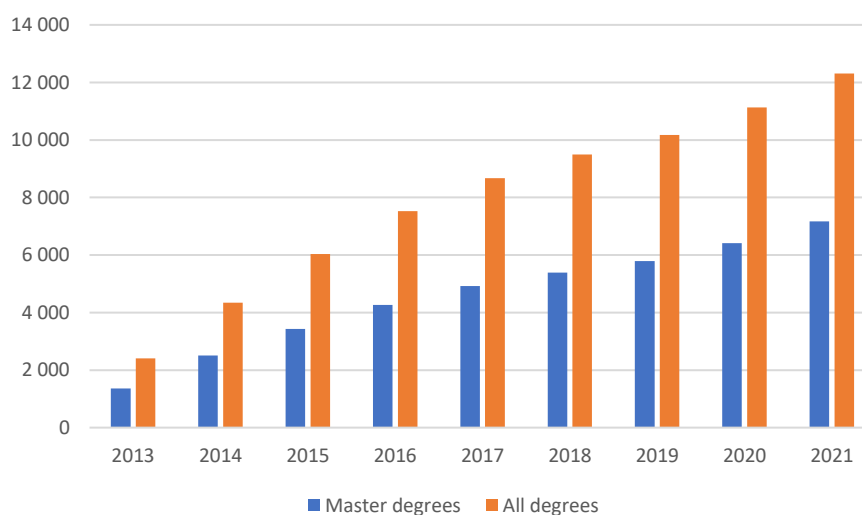
Number of years after exam/degree	Share of still in Sweden
1 year after	31%
2 years after	27%
3 years after	27%
4 years after	25%
5 years after	20%
6 years after	15%
7 years after	10%
8 years after	10%

Source: UKÄ and WSP assumptions.

By starting from the number of graduates by international students and applying shares for how many remain in Sweden, the number of international students who graduated during the period 2012 to 2020 and who remain in Sweden during each year of the period 2013-2021 can be calculated.

The population increases over the period and in 2021 more than 12 300 international students with an exam from a Swedish university during the period 2012-2020 are expected to still be living in Sweden. Corresponding number with a master's degree is calculated to be almost 7 200 individuals.

**Figure 6: Number of international students graduating with a degree during the period 2012-2020 still in Sweden during the period 2013-2021**



Source: UKÄ and WSP estimation.

### **International students working in Sweden after graduation**

UKÄ has also studied to what extent international students with a degree from a Swedish university staying in Sweden succeed to establish

themselves on the Swedish labor market.<sup>10</sup> They followed the populations of incoming students that graduated in 2012/13, 2013/14 and 2014/15 to find out how large share of those still in Sweden were established on the labor market 1-1,5 years after graduating.<sup>11</sup> 55 percent of those graduating in 2012/13 were established 1-1,5 years after graduation. Corresponding shares for those graduating in 2013/14 and 2014/15 were 59 and 61 percent respectively.

Transforming these shares to fit the calendar year and assuming the share of establishment remain on the rather low level of 61 percent for those graduating after 2014/15 and assuming the share to be constant, no matter how long after graduation, generates shares of establishment presented in Table 7.<sup>12</sup>

*Table 7: Share of establishment on the labor market 1-1,5 years after graduation*

		Share of establishment on the labor market by year								
		2013	2014	2015	2016	2017	2018	2019	2020	2021
Year of graduation	2012	55%	57%	60%	61%	61%	61%	61%	61%	61%
	2013		57%	60%	61%	61%	61%	61%	61%	61%
	2014			60%	61%	61%	61%	61%	61%	61%
	2015				61%	61%	61%	61%	61%	61%
	2016					61%	61%	61%	61%	61%
	2017						61%	61%	61%	61%
	2018							61%	61%	61%
	2019								61%	61%
	2020									61%
	2021									

Source: UKÄ and WSP assumptions.

By multiplying the number of individuals in Table 6, i.e., those graduating during the period 2012-2020 and remaining in Sweden during the years 2013-2021, with the share of establishment on the labor market by year of examination and time after graduation (Table 7), the number of established incoming students can be calculated for each year during the period 2013-2020.

The population increases over the period and in 2021 around 7 500 international students with an exam from a Swedish university during the period 2012-2020 are expected to be established on the Swedish labor market. The corresponding number with a master's degree is calculated to be almost 4 400 individuals.

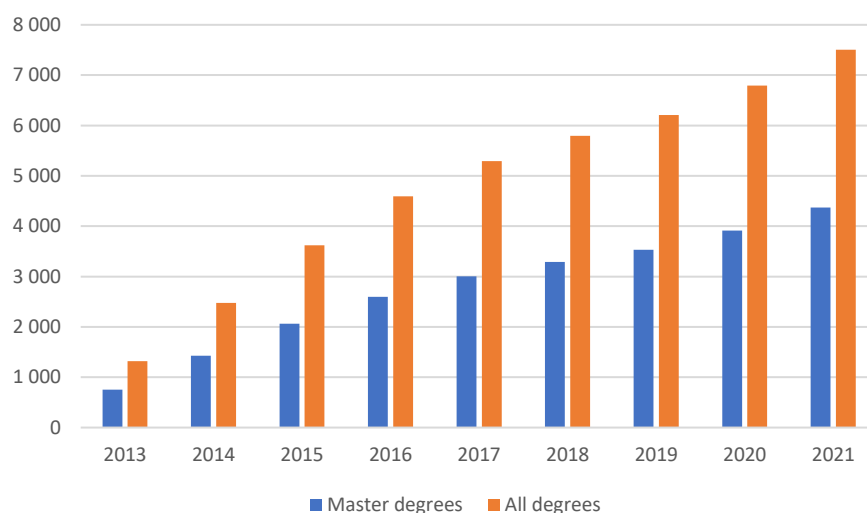
<sup>10</sup> UKÄ, Etablering på arbetsmarknaden efter studier i högskolan, 2019.

<sup>11</sup> To be considered as established on the Swedish labor market UKÄ required that the individual had job with an annual income of at least 230 300 SEK (2016) and no periods of unemployment.

<sup>12</sup> The shares of establishment on the labor market have been transformed to fit calendar year in the following way. The share for the calendar year 2012 equals the share for 2012/13. The share for the calendar year 2013 equals the average share of 2012/13 and 2013/4. The share for the calendar year 2014 equals the average share of 2013/14 and 2014/15. The share for the calendar year 2015 equals the share of for 2014/15. The share for the years 2016-2021 has been assumed to be the same as for 2015.



*Figure 7: Number of international students graduating with a degree during the period 2012-2020 and established on the Swedish labor market during the period 2013-2021*



### ***Economic impact of international students working in Sweden***

The economic impact of the international students working in Sweden is estimated by applying average salaries to the number of established individuals for each year of the examined period.<sup>13</sup> This generates total earned income and by applying a rate of income tax and the general payroll tax (arbetsgivareavgift) the total income tax revenue is calculated.<sup>14</sup>

The outcome of total income, income tax revenue for municipality and state and amount left for consumption or savings generated by international students working in Sweden during the period 2013-2021 is shown in Figure 8.

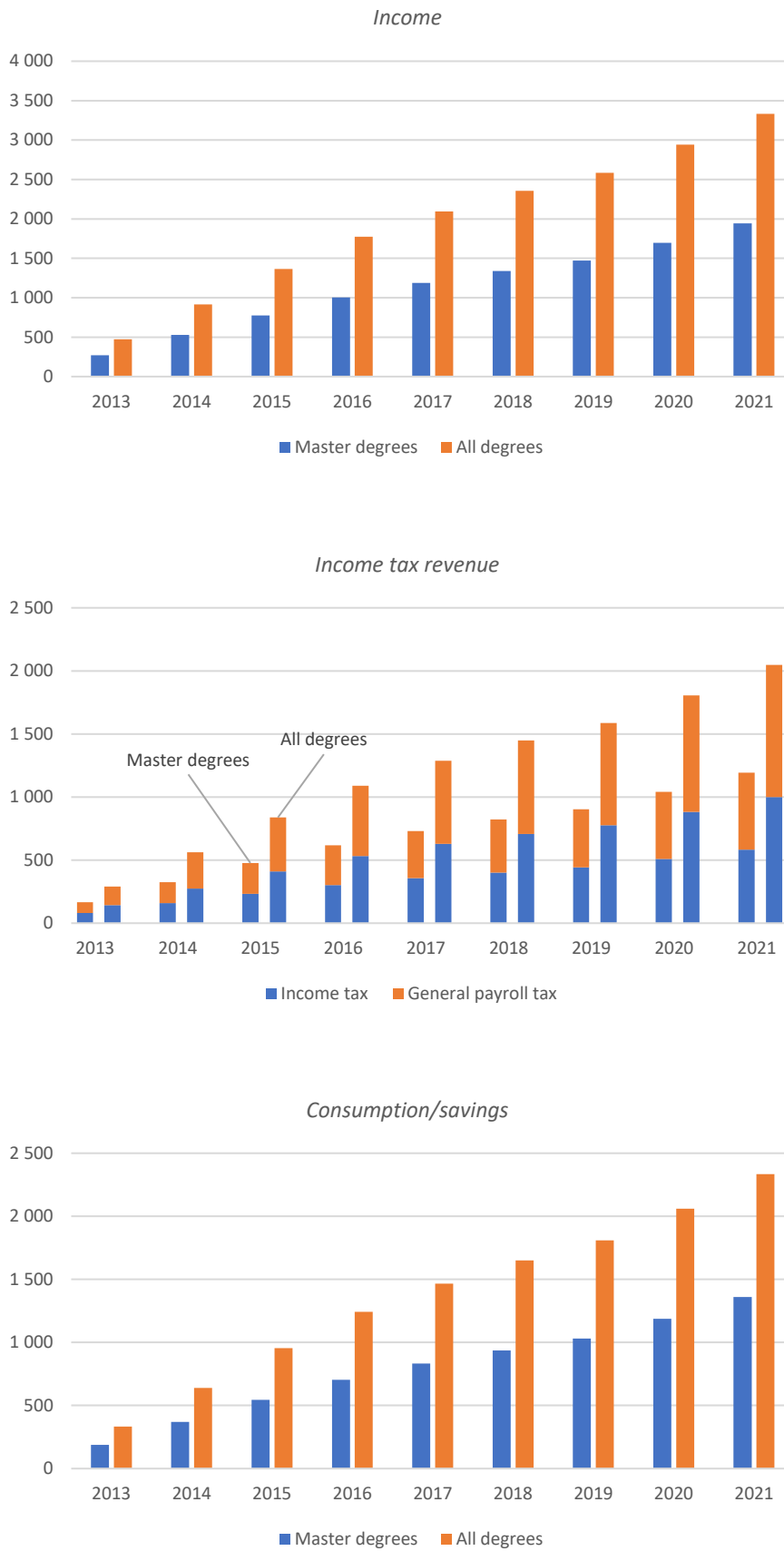
In summary, the economic impact of the international students graduating from a Swedish university during the period 2012-2020 and staying working in Sweden can be summarized as:

- Contribution with trained labor in the Swedish labor market
  - 25 000-44 000 in total annual workforce (period 2013-2021)
  - On average 2 800-4 800 per year
- Generation of income tax revenue
  - Between 6 300-11 000 million SEK for (period 2013-2021)
  - On average 700-1 300 million SEK per year
- Potential consumption subsidy
  - On average 800-1 400 million SEK per year

<sup>13</sup> The salary used for the estimation is the average salary for all employees according to LO:s Lönerapporter for each year. This amounted to 29 900 SEK per month in 2013 and 36 100 SEK in 2020. For 2021 the average salary was estimated to 37 000 SEK by using the average annual increase of the average salary between 2013 and 2020.

<sup>14</sup> The rate of income tax used is 30 percent (municipal income tax). No state income tax has been applied since the level of salaries are below the threshold for the state income tax. The general payroll tax has been 31,42 percent during the whole period.

Figure 8: Income, tax revenue and consumption/savings 2013-2021 generated by international students by graduation degree, million SEK



### **Why international students chose to stay or leave**

To begin with, it is clear that Sweden can evidently benefit if more international students who study in Sweden also stay and work after their graduation. In fact, three out of four international students want to stay in Sweden after graduation which gives a certain indication of the economic possibilities, but the truth of the matter is that only three out of ten stays.<sup>15</sup>

There are several reasons why international students leave Sweden after graduation. The Confederation of Swedish Enterprise have mapped why these students leave Sweden within a relatively short time after graduation. They report the following main reasons for students leaving Sweden after their studies:<sup>16</sup>

- **Complicated regulations.** Many students are having trouble in getting a work permit and residence permit before starting their studies as well as getting one after the studies have been completed. Advanced level programs are usually two years, but the students who are admitted only receive a residence permit for one year at a time and must therefore apply for an extension of the permit after one year of study.
- **Lack of contacts with the labor market.** Absence of relationships with employers, as well insufficient opportunities for internships, means that international students have difficulty to find work despite their high level of education.
- **Low wage levels.** Small wage differences in Sweden are stated to be a contributing factor to the fact that doctoral students apply to other countries with better wage levels after their dissertations, instead of staying in Sweden.
- **Lack of knowledge about recruitment processes and the Swedish labor market.** Many foreign academics generally find it difficult to enter the Swedish labor market. Lack of important contacts with the rest of society and a lack of Swedish cultural competence can be reasons affecting this.
- **Insufficient support from higher education institutions.** Traditionally, Swedish universities take relatively little responsibility for supporting students into working life, both in terms of contacts and career start.

Moreover, Almega – the employers' organization for the Swedish service sector have made similar conclusions in their work that point out the necessity of more streamlined processes for residence and work permits, the need to increase collaboration between the academic institutions and employers parallel with more opportunities for internships.<sup>17</sup>

The Swedish Agency for Growth Policy Analysis have outlined the number of incoming students who concluded their studies in 2013 and how many that were employed in 2015. A clear majority of those employed had studied in the more technical oriented universities such as KTH and Chalmers, followed

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<sup>15</sup> Svenskt Näringsliv, Utländska mastersstudenter och doktorander lämnar Sverige. Problem och hinder för internationell spetskompetens att stanna i Sverige, 2021

<sup>16</sup> Ibid

<sup>17</sup> ALMEGA, Attrahera och bibehålla – fler internationella studenter för minskade kompetensbrister, 2016.

by the largest universities being Lund University, Stockholm university, Gothenburg University and Uppsala University. The same report mapped where these individuals come from. Most of them came from the EU (37,4 percent), followed by Asia (32 percent), Nordics (7,7 percent) and Africa (4,9 percent). Almost all these people work in the three larger cities in Sweden, Stockholm, Gothenburg, and Malmö.<sup>18</sup>

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<sup>18</sup> Tillväxtanalys, Vad kan staten göra för att underlätta kunskapsintensiva industriers attraktion av internationell kompetens? 2018

## CONCLUDING REMARKS

This study has shown that the economic impact of international students studying in Sweden and staying working here after graduation is quite significant.

During the school year 2020/21, international students contributed with between 3 500 and 4 000 million SEK to the Swedish economy. That corresponds to 140 000 SEK per international student on average. 90 percent of the economic impact can be attributed to freemover students. Some of the international students graduating from a Swedish university stay and work in Sweden. Estimations in this study show that only among those international students graduating during the last decade, the contribution to the Swedish economy through trained labor supply, income tax revenue and potential consumption subsidy is considerable. During the period 2013-2021, this group has contributed with several thousands of trained labor supply to the Swedish labor market and on average generated between 700 and 1 300 million SEK in income tax revenue annually. Their potential consumption subsidy has been estimated to amount between 800 can 1 400 million SEK on average per year.

Moreover, it can be assumed that the international students also contribute to increased labor demand through multiplier effects on their consumption and income tax generation.<sup>19</sup> Almega has estimated that international students' consumption during the school year 2012/13 generated an increased employment of 1 600 persons.<sup>20</sup>

Except from the pure economic impact there are several other advantages that international students establishing on the Swedish labor market contributes with. Established students on the labor market contribute to...

- ...reduced skills shortages in the private and public sector
- ...better multiculturalism and international understanding in Swedish companies.
- ...innovations and technical development in Sweden.
- ...better cooperation climate between countries with student exchanges thanks to networks and increased intercultural understanding

To conclude, the findings of this study shed light on the importance of the international students as an industry. Indeed, in terms of pure economic gains, but also in terms of broadening the culture of Sweden, to improve innovation capacity and skills supply that in turn results in synergies to other parts of the labor market. Therefore, it is encouraging that UKÄ:s annual report of 2021 show promising developments for the future. There has been a significant increase in international students taking their first degree in Sweden, and nearly all of them were freemover students. They accounted for

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<sup>19</sup> This effect has not been estimated in this study but the amount of consumption and income tax revenue indicates that the so called economic dispersal effects of international students and international students staying working in Sweden that arise from multiplier effects are clearly measurable.

<sup>20</sup> ALMEGA, Attrahera och bibehålla – fler internationella studenter för minskade kompetensbrister, 2016.

the entire increase in graduates, while the number of exchange students who graduated was the same as the previous academic year. Consequently, it is not unreasonable to suggest that the conditions are promising for continuing the trajectory that this report has shown. This is certainly true if the reported bottlenecks can be eased or removed.

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