



Retaining U.S. International Student Graduates

To Win the Global Talent Race

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The United States could increase its competitiveness in the global race for talent with a straightforward process for the 100,000 international students projected to graduate from U.S. colleges and universities each year who want to stay and work permanently in the country. According to FWD.us estimates, allowing such graduates to secure a green card upon graduation could add up to \$233 billion in wages to the U.S. economy this decade, including \$65 billion in combined federal, state, and local taxes. Such a policy could also reduce our STEM-related talent shortages by a quarter this decade.

Congress should immediately introduce legislation allowing international students a direct avenue to permanent residency after their graduation.

The U.S. has an opportunity to bolster its leadership in the global talent race.

For decades, the U.S. has been the global leader in higher education and the top destination for international students from around the world. The U.S. offers both superior educational opportunities and an attractive, supportive environment for international students. Consequently, the U.S. saw the number of new international students grow throughout much of the previous decade, bolstering this incredible competitive advantage in recruiting global talent.

But this competitive edge has started to dull as other countries ramp up their efforts to recruit prospective students. For the first time in many years, the total number of international students in the U.S. [decreased in 2019](#), and continued decreasing even further after the start of the COVID-19 pandemic.

The U.S. hosts more international students than any other country in the world.

But 50% more international students study in Australia, Canada, and the U.K. combined than in the U.S., much higher than in 2015 when about the same number studied in the U.S. as in these three countries

Declining international student enrollment clearly indicates the U.S. is losing its attractiveness, and our immigration policy is a critical contributing factor. A new survey commissioned by FWD.us of prospective international students suggests the problem will only get worse in the years ahead. Students choosing to study in other countries are often motivated by the ability to stay in that country after graduating, suggesting that those nations' immigration policies are a strong attractor. For example, majorities of students who are likely to study in Canada (64%) and Australia (52%), say a straightforward process to live permanently in the country after graduation is important when selecting their country of study. By contrast, this number is a minority (47%) for students likely to study in the U.S., suggesting that the U.S. is ignoring a critical factor to attract prospective students.¹

While other countries promising accessible opportunities to stay and work have seen their recruitment efforts surge, the lack of a straightforward path for international student graduates to stay permanently and eventually acquire U.S. citizenship has been [forcing the U.S. to lose out on recruiting top talent.](#)

¹ For example, Canada offers a [postgraduate work permit](#) for international students that can be [easily transitioned](#) into permanent residency. Similarly, [Australia](#) and [the U.K.](#) offer many pathways for international student graduates to stay and work.

The U.S. needs international student graduates to help fill talent shortages.

America will feel the consequences of losing the global race for talent as much at home as on the global stage. Talent shortages for STEM-related jobs, for example, persist in the U.S., even as we enter a postpandemic economy.²

Today, the U.S. has 3 million job vacancies in professional/business service and healthcare/social assistance industries, up from about one million vacancies in 2010.

STEM industries facing dire shortages include occupations such as physicians, computer engineers, scientists, and mathematicians—jobs that are critical to fill for the U.S. to meet emerging [healthcare needs](#) for an aging [population](#), grow our [global competitive advantage](#), deliver needed advancements in [science and technology](#), and respond to ever-changing [national security](#) needs. These industries have largely maintained a 5% or higher rate of job openings during the past decade, even [during and after the pandemic](#).

While these industries are searching desperately for more workers, thousands of [international students](#) educated in the U.S. and trained in these important fields return to their home countries each year, a major loss to the U.S. economy. For example, some [16% of all graduates from STEM-related fields](#) are international students, including nearly half of STEM master's (48%) and PhD (45%) graduates. These professionals, if they could remain permanently in the U.S., could contribute

² These industries include jobs in [professional, scientific, and technical services](#) including accounting, architecture, computer systems, scientific research, and consulting. [Healthcare/social assistance jobs](#) include nurses, medical scientists, and social/community health managers.

greatly to the U.S. economy. Failing to create a mechanism for retaining talented international students educated in the U.S. results in a self-imposed disadvantage for the United States.³

Thousands of international student graduates want to stay and work in the U.S.

Despite these challenges, the U.S. continues to attract top talent, and the missed opportunities of the past decade can still be turned around. Using government data and a recent international survey of prospective international students,

FWD.us estimates that, on average over the next decade, as many as 100,000 international student graduates each year—including 66,000 in business management, health, and STEM-related fields—would like to stay and work in the U.S. for the long term if a straightforward process for permanent residency were available to them.

Such a policy, if enacted by Congress, could reduce shortages in business management, health, and STEM-related jobs by a quarter this decade.

Because our immigration system has not seen substantial updates in decades, international graduates rely upon [Optional Practical Training \(OPT\)](#), an extension of their student status to allow them to stay and work in the U.S. in their field of study

³ For an overview of the opportunities international student graduates offer the U.S. labor force, please see this [FWD.us amicus brief](#) defending the continued use of Optional Practical Training (OPT).

for one year, plus an additional two years for individuals with STEM degrees. The number of international students staying and working in the U.S. extension program has [increased dramatically](#) in recent years. If international student graduates wish to continue working in the U.S. beyond their time on OPT, an employer likely attempts to obtain them a [specialty occupation visa](#), such as an H-1B visa.

For more information on current and recommended policies for international student graduates accessing permanent residency in the U.S., see our policy blog: fwd.us/international-student-policies

However, specialty occupation visas and employment-based green cards have [numerical limits](#) that are [significantly smaller](#) than the number of graduates being sponsored by American employers. And complicated prioritization limits squeeze out many international student graduates from working permanently in the United States. These caps, among other immigration policies, have created an [arduous process](#) for international students who want to stay in the U.S., creating bottlenecks at multiple points along the path. Because of these challenges, many international students return home soon after completing their studies, rather than putting their talents to work here.

Retaining international student graduates would considerably grow the U.S. economy.

FWD.us estimates that the economy could expand by up to \$233 billion over the next decade through these graduates' economic contributions if graduates could work permanently in the U.S.

The U.S. could experience an even larger economic impact when some of these graduates start businesses in the U.S. About [2 in 5](#) Fortune 500 companies, for

example, were started by immigrants or children of immigrants. And, each immigrant with an advanced degree, on average, adds even [more jobs](#) to the economy. Consequently, granting international student graduates a pathway to permanently remain in the U.S. and eventually obtain U.S. citizenship could reap even greater economic dividends than their own wages.

The Biden Administration has developed [an action plan](#) to strengthen international education, including increasing the recruitment and retention of international students, and has made some initial changes such as adding [more STEM categories](#) for graduates applying for a temporary visa. At the same time, however, the administration has been slow to act, compounded by lengthy immigration [processing delays](#) at United States Citizenship and Immigration Services (USCIS).

Some opportunities for international graduates can be expanded by executive action, but Congress still needs to act. Congress should immediately introduce legislation allowing international students a clear avenue to permanent residency after their graduation. This would benefit the U.S. economically as we compete with other nations for highly skilled talent, and grow our economy through [increased immigration](#).

International students need to know that, if they successfully complete their study in the U.S., they are not only welcomed, but actively encouraged, to put their education, training, and skills to work here in the United States.

It's a smart policy for international students. It's an even smarter policy for America.

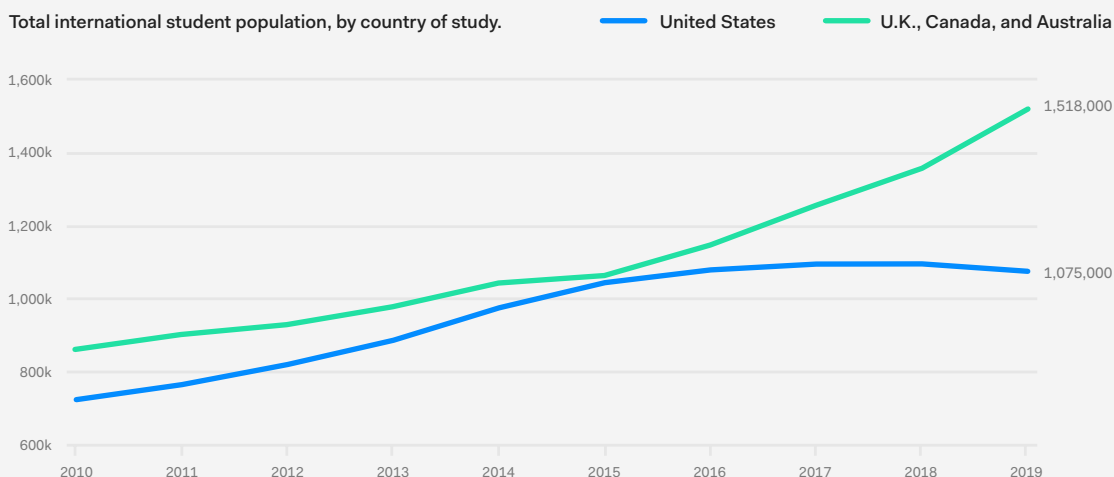


The U.S. is Falling Behind in the Global Talent Race

The U.S. is the world's top destination for international students, with nearly 1.1 million international students in 2019 before the start of the COVID-19 pandemic.⁴ But the growth in the total number of international students has slowed in recent years, meaning fewer new international students are choosing to bring their talents to the U.S.

In fact, the total number of international students in the U.S. decreased in 2019, the first time since the 2001-2002 academic year.⁵

International Student Enrollment Plateaus in the U.S. As It Rises in Other Countries



Note: Rounded to thousands.

Source: International Institute of Education's (IIE) Project Atlas (2012-2019), Organization for Economic Co-operation and Development (OECD) estimates for 2010 and 2011.

⁴ Per capita, however, the U.S. has a much smaller international student population compared with other countries. In the U.S., there were 3 international students for every 100,000 residents in 2019. The UK had 8 international students for every 100,000 residents, while Canada had 13 and Australia had 18.

⁵ In 2020, at the peak of the COVID-19 pandemic, the total number of international students in the U.S. fell to [about 900,000](#), largely due to a severe decrease in the number of *new* international students.

At the same time, other English-speaking countries seeking to attract international students have seen their enrollments increase. The number of international students in Canada, for example, has more than doubled since 2010, and increased 16% alone between 2018 and 2019. Australia has also seen a similar doubling of students during the past decade. Meanwhile, international student enrollment in the UK plateaued for several years, but jumped by 12% between 2018 and 2019.⁶

In 2019, about 50% more international students studied in Australia, Canada, and the U.K. combined than in the U.S. By comparison, in 2015, about the same number of international students studied in these three countries combined as in the U.S.

Several factors influence which country international students choose. For example, FWD.us analysis of a [recent survey](#) of prospective international students shows that majorities of prospective international students planning on attending a university in Australia (54%), Canada (51%), the UK (61%), or the U.S. (61%) base their decision on the quality of postsecondary teaching in the country. They also highly rate whether the country welcomes international students, with majorities of students likely to study in these countries—Australia (55%), Canada (55%), the UK (54%) and the U.S. (55%)—all saying it is an important factor in their decision. Scoring relatively high on these factors, the U.S. continues to be somewhat competitive in the global talent race for international students. This is to our competitive *advantage*.

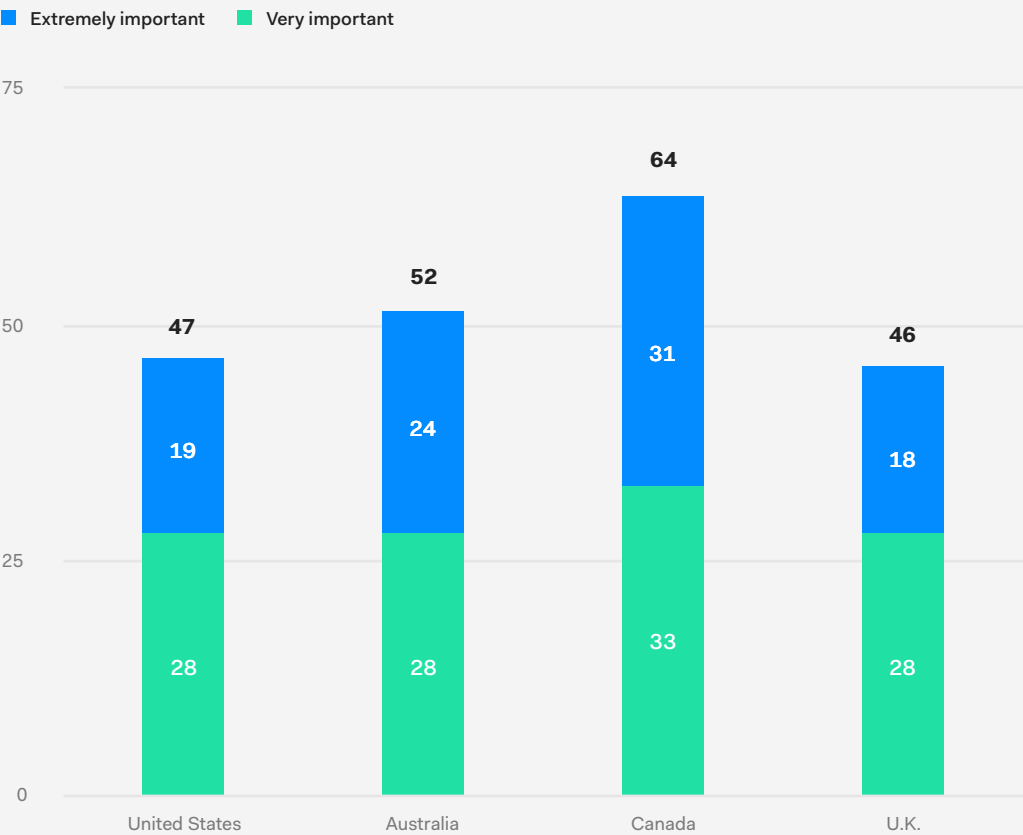
However, the third highly ranked factor for country selection is the importance of a straightforward process to be able to live permanently in the country of study after graduation. The United States' poor performance in this category is a missed

⁶ 2020 enrollments after the start of the COVID-19 pandemic show a fluctuating international student population in these countries, with an increase from 551,000 to 601,000 in the UK, a dramatic decrease from 503,000 to 256,000 in Canada, and a slight decrease in Australia from 464,000 to 429,000 international students.

opportunity and could be a factor driving the decline in new enrollments. FWD.us' survey results show that a minority (47%) of future international students likely to study in the U.S. find this issue to be *extremely important* or *very important* when deciding their country of study.

Prospective Students to Canada and Australia Motivated by Permanent Immigration Options, While Less Motivating for U.S.-Bound Students

% importance of a straightforward process to live permanently in the country following graduation, by likely country of study.



Note: Survey question: “When selecting a country to study in, how important is a straightforward process to live permanently in the country following graduation?”

Source: FWD.us 2021 survey of prospective international students likely to study in listed countries, as part of QS Quacquarelli Symonds’s annual [international student survey](#). See [Methodology](#) for details.

By comparison, however, *majorities* of students who are likely to study in Canada (64%) and Australia (52%), countries with more accessible paths to permanent residency for graduates, also say permanent residency options are important, possibly indicating a factor that is attractive to prospective international students in these countries that is less available in the United States. This is to the U.S.' competitive *disadvantage*, likely reflecting the fact that competing countries have more accessible paths for permanent residency.

Our failed immigration system has made the U.S. a less-desirable destination for international students, with other countries picking up talent that could have chosen to study in the United States.

There is an opportunity for Congress to make a bold move to address the disadvantage and change this trend: give international students a clear, legal avenue to become permanent residents, leading to U.S. citizenship. Shoring up a critical deficit in the U.S. attractiveness to prospective students could increase international student enrollment, strengthening a long-term pipeline of individuals to meet highly skilled labor demands in the U.S.

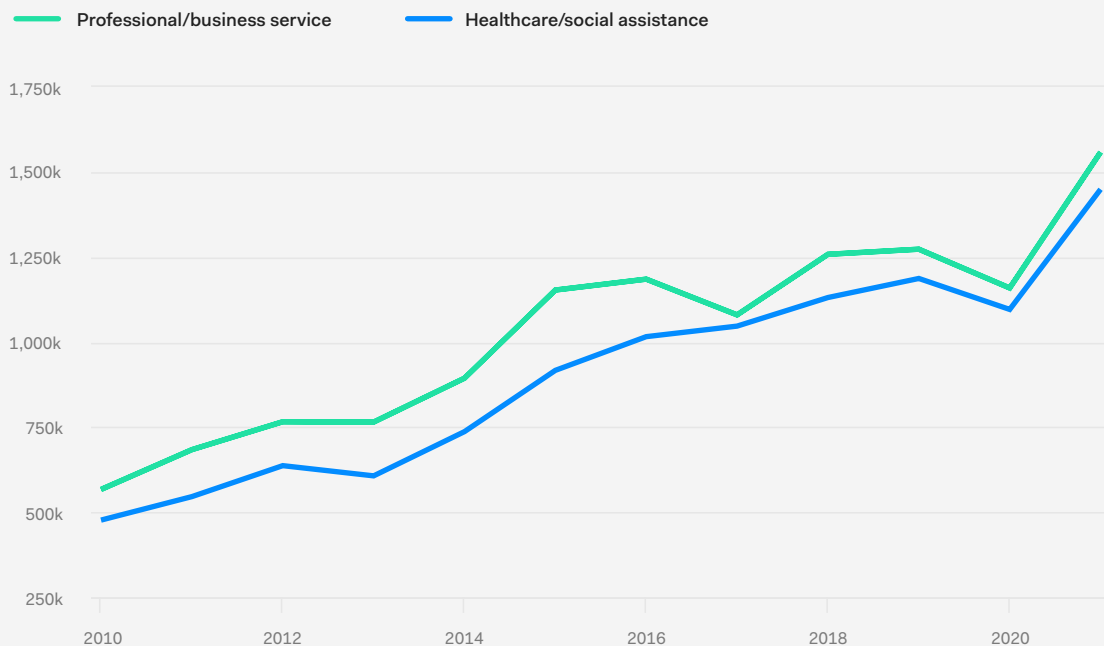
A black and white photograph of three surgeons in an operating room. They are wearing surgical masks, face shields, and scrubs. They are gathered around a patient on a table, which is covered with various medical instruments and tubes. The background shows a typical hospital setting with a bulletin board and a 'Time OUT' sign.

International Student Graduates Can Help Fill U.S. Talent Shortages

Job vacancies in STEM, health, and business management fields have nearly tripled during the previous decade. And, based on current trends, job vacancies in these fields will remain high in the years ahead, numbering an estimated 2.5 million job vacancies in these industries in 2030 if current job trends and our restrictive immigration policies continue.

The Number of Highly Skilled Job Vacancies Has Nearly Tripled Over the Past Decade

Estimated highly skilled job openings in the U.S., in thousands.



Note: Jobs in [professional, scientific, and technical services](#) include accounting, architecture, computer systems, scientific research, and consulting. [Healthcare/social assistance jobs](#) include physicians, nurses, medical scientists, and social/community health managers.

Source: FWD.us analysis of Bureau of Labor Statistics, October 2021

There is simply an insufficient number of native-born graduates to fill all these highly skilled jobs. These labor shortages have persisted, largely unchanged, throughout the COVID-19 pandemic. Consequently, U.S. companies need access to a larger pool of potential job candidates.

Fortunately, international students who are already living here, who have been educated at U.S. higher education institutions, and who often have hands-on experience working for U.S. companies, can help grow this talent pool on the very campuses where many U.S. businesses already prioritize their recruitment.

Increasing immigration in this way [supports the U.S.' economic](#) and [national security](#) interests. In fact, attracting and retaining international students is an important tool the U.S. should use to expand research and advance science and technology, and to bolster the healthcare workforce needed to support our aging population.

By welcoming international students with education and training to fill critical roles in these fields, the U.S. can reverse this trend and turn a shortage into an advantage.

FWD.us estimates that labor shortages for business management, health, and STEM-related positions could be reduced by a quarter over this decade if our immigration system put in place a commonsense process for international student graduates wanting to fill these empty roles.

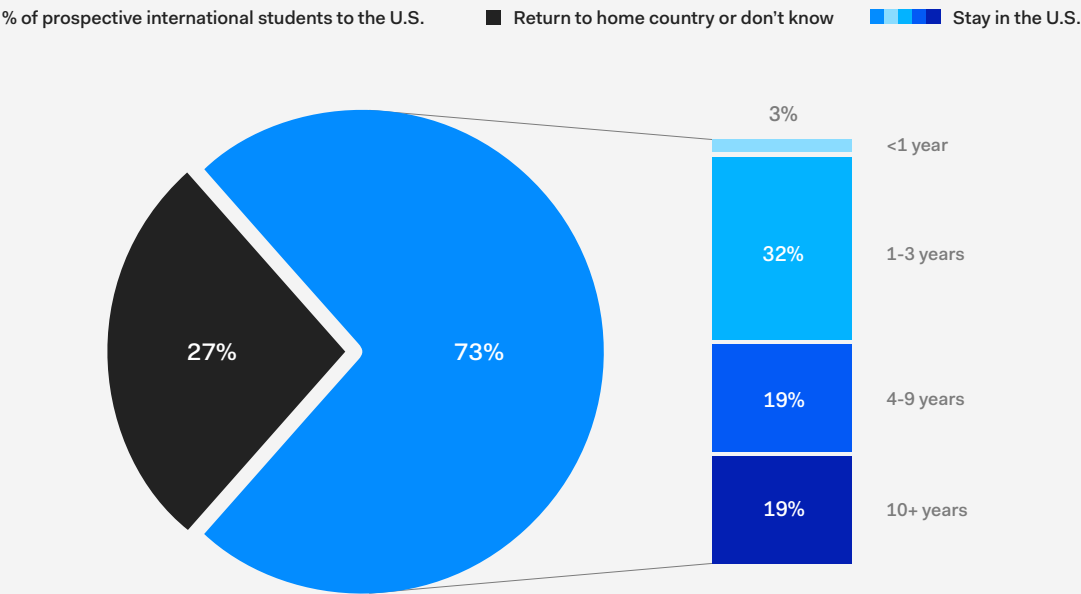
This can be done by creating a straightforward avenue for permanent residency that leads to U.S. citizenship.

A teal graphic element consisting of a circle at the top and a vertical bar extending downwards.

Most International Student Graduates Want to Stay and Work in the U.S.

A majority (73%) of prospective international students to the U.S. in 2021 say they would stay in the U.S. to live and work if they were graduating from their degree program today and a visa were easily accessible to them. Nearly 4 in 10 (38%) prospective students say they would like to live in the U.S. for four years or longer after graduation, longer than the OPT program, the main postgraduate work program, currently permits.

Most Prospective International Students Would Stay in the U.S. After Graduation if a Visa Were Easily Accessible to Them



Note: Survey question: "If you were graduating from your intended degree program today, would you seek a visa to stay and work within the U.S. if a visa was easily accessible to you?" Among those saying yes, "How long would you ideally like to live and work in the U.S. following graduation?"

Source: FWD.us 2021 survey of prospective international students to the U.S., as part of QS Quacquarelli Symonds's annual [international student survey](#). See [Methodology](#) for details.

The U.S. has invested heavily in educating and training these international graduates to do these critical jobs, and most graduates want to stay to do that work here. Many already have hands-on experience working for a U.S. employer through the OPT program. To shut the door on them and force them to take their education and skills to our economic competitors would be a tremendous waste and long-term loss for our country.

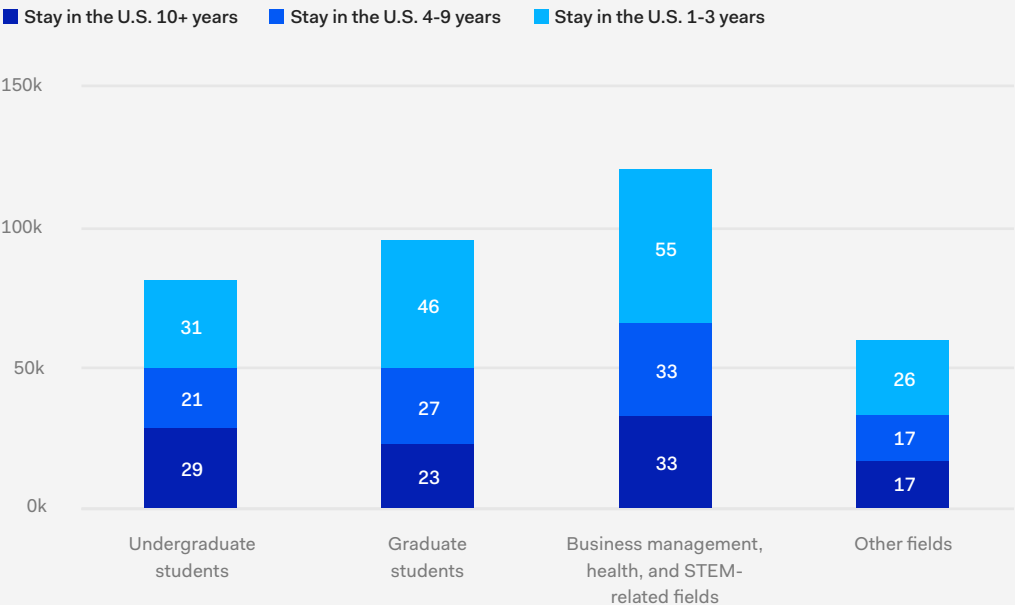
FWD.us estimates that about 100,000 international student graduates each year would, on average over the next decade, stay in the U.S. long term, or four or more years, to work in their fields of study.

This amounts to about an equal number of undergraduate (50,000) and graduate (50,000) students. Of these prospective international students hoping to stay in the U.S. long term, most (66%) would be seeking jobs in business management, health, and STEM industries, numbering about 66,000 undergraduate and graduate students each year contributing to the highly skilled workforce in these fields.⁷

⁷ This estimate is conservative. It allows for an annual, incremental increase in student enrollment in the next several years, but it does not capture the anticipated increase in international student enrollment if an international student graduate visa program were to be enacted. Also, the 38% multiplier from the survey for those wanting to stay four or more years is likely a floor in the share that would stay permanently. A substantial portion of those who may intend to stay for one to three years would likely stay longer, and our estimate does not take into account those who may meet future spouses while studying and would stay in the U.S. under family visa programs. In sum, our estimates for the number of students likely to take up a permanent visa as well as the associated billions in economic expansion would likely be higher if such a policy as proposed in this report were enacted by Congress.

Thousands of International Students Would Stay in the U.S. if Given an Accessible Path to Permanent Residency

Annual estimates for expected stay in U.S. after graduation, in thousands, by degree program and field of study.



Note: Survey questions used for estimation: “If you were graduating from your intended degree program today, would you seek a visa to stay and work within the U.S. if a visa was easily accessible to you?” Among those saying yes, “How long would you ideally like to live and work in the U.S. following graduation?” Shares for those desiring to stay were applied to average, annual projected number of international student graduates between 2021-2022 and 2030-2031 school years.

Source: FWD.us estimates. See [Methodology](#) for details.

Providing a clear legal avenue for international students based on their U.S. education after graduation would significantly reduce our shortage of highly skilled labor in the short term, and strengthen our global competitiveness over the long term.

Many international students also go on to [start their own companies](#), hiring even more workers and growing the economy. And with graduates [making up a quarter](#) of cofounders of billion-dollar startups, new, legal avenues for graduating international students to stay and work in the U.S. will only create more jobs.



The U.S. Stands to Considerably Grow Its Economy

According to FWD.us estimates, the U.S. economy stands to gain up to \$233 billion between 2022 and 2030, including some \$65 billion in combined federal, state, and local taxes, if Congress enacts a permanent pathway for 100,000 international student graduates each year.

By filling these job shortages with international student graduates, such a policy would add millions of dollars to state economies, as well as millions in additional state and local taxes. Consequently, the economic impact of retaining our international student graduates is not only good for the American economy as a whole, but also for individual state economies.⁸

Passing legislation that provides a permanent path for international student graduates will allow talented people from around the world to build their careers in the U.S., while expanding our economy. It is truly a win-win situation.

Congress needs to find a bipartisan solution now to increase our global competitive advantage and further grow our economy.

⁸ Some of these gains could be realized with the current immigration system, as some international student graduates would be successful in qualifying for and working through current immigration regulations. As explained in this report, however, many are unable to remain permanently because of flawed immigration policies, and instead return to their home countries, lowering the potential economic impact by billions of dollars.

Total Economic Gain Between 2022 and 2030 for Retaining International Students Wanting to Stay Permanently in U.S., in Millions

State	Total Economic Contribution	Federal, Payroll Tax Contributions	State and Local Tax Contributions
<i>United States</i>	\$232,945	\$44,019	\$21,927
Alabama	665	137	44
Arizona	5,993	1,238	470
Arkansas	483	81	46
California	35,323	7,841	3,278
Colorado	3,640	727	300
Connecticut	1,752	307	193
Delaware	972	171	58
District of Columbia	3,269	624	319
Florida	7,143	1,271	498
Georgia	4,265	764	392
Hawaii	62	2	8
Idaho	348	77	28
Illinois	9,646	1,531	1,028
Indiana	4,079	728	416
Iowa	5,047	1,087	503
Kansas	2,984	520	305
Kentucky	1,951	344	192
Louisiana	1,427	268	132
Maryland	4,865	952	501
Massachusetts	11,709	2,225	1,049
Michigan	8,272	1,587	730
Minnesota	1,742	301	166
Mississippi	1,417	292	120

Continued on next page.

Total Economic Gain Between 2022 and 2030 for Retaining International Students Wanting to Stay Permanently in U.S., in Millions (Cont.)

State	Total Economic Contribution	Federal, Payroll Tax Contributions	State and Local Tax Contributions
Missouri	2,956	432	270
Montana	2,655	432	181
Nebraska	3,915	744	368
Nevada	957	182	62
New Hampshire	144	22	12
New Jersey	7,820	1,496	786
New York	24,138	4,487	2,940
North Carolina	6,031	1,097	534
North Dakota	72	2	7
Ohio	7,942	1,504	799
Oklahoma	1,377	241	136
Oregon	853	156	76
Pennsylvania	8,521	1,526	796
Rhode Island	1,433	282	132
South Carolina	902	173	75
South Dakota	557	95	46
Tennessee	2,255	211	157
Texas	9,894	1,852	807
Utah	1,828	300	151
Virginia	10,806	2,097	967
Washington	14,491	2,642	1,204
West Virginia	321	56	28
Wisconsin	5,928	894	609
Wyoming	96	20	6

Note: Estimates for Alaska, New Mexico, Maine, and Vermont unavailable.

Source: FWD.us estimates. See [Methodology](#) for more information.

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Methodology

This report brings together estimates, survey results, and projections based on three types of data: (1) international student administrative data, (2) international student survey data, and (3) labor force and economic data.

INTERNATIONAL STUDENT ADMINISTRATIVE DATA

Total international student enrollment figures in the U.S. are based on annual reporting by [Open Doors](#). Student enrollment for other countries was gathered from [Project Atlas](#) (2012 to 2019) and [OECD](#) (2010 to 2011). Origin country distributions in 2019 from these data were used for weighting international survey data (see below). These figures serve as the total population of international students, or total stock, for a particular school year. Years are the start of school years in each country, usually September for Canada, the UK, and the U.S., and March for Australia.

Projections of *new* international students entering the U.S., or annual inflows, allowed for a sharp, one-year increase from 2020 to 2021 due to deferrals of international students as a result of the COVID-19 pandemic, based on findings from the Open Doors 2020 Fall snapshot survey. New student enrollment projections for 2022 through 2027 follow the average annual growth trend in new international students from 2010 to 2015, the last extended period of growth in international students after the U.S. economic recession in 2007 to 2009.^a This growth assumption in the number of new international students each year results in about 340,000 new undergraduate and graduate international students in 2027, about 100,000 more than new student enrollment in recent years.^b Projections of new international students were estimated separately for undergraduate- and graduate-degree levels. Projected breakdown by field (STEM-related, business management, and healthcare as a single group versus all other fields) was based on the field breakdown for all enrolled students in 2020.

FWD.us then estimated the number of international student *graduates* by their degree program and field of study within the projection period (2021-2022 to 2030-2031 school years). With the projected number of new international students entering undergraduate programs (four-year programs) and graduate programs (also assumed to be an average of four years in duration) for future years, the total number of projected graduates each year for 2021-2022 to 2030-2031 school years was estimated. These projected, annual international student graduate estimates were used as a base population in estimating the average annual number of graduates over the decade who desire to stay and work permanently each year based on our survey data (see international student survey data below).

^a The model assumes an increase in international student enrollment. Findings from QS Quacquarelli Symonds' [U.S. report](#) indicate increased excitement among prospective students to study in the U.S. after the election of the Biden Administration. Also, [greater cooperation](#) between the Department of Education and the Department of State should promote a more accessible pathway for prospective students to study in the U.S.

^b Nondegree international students are not included in most of this report's estimates and projections.

INTERNATIONAL STUDENT SURVEY DATA

FWD.us commissioned survey questions in QS Quacquarelli Symonds's annual [international student survey](#) of prospective international students worldwide, the world's broadest and largest survey of prospective international students. Survey respondents were recruited via a network of participating higher education institutions in the U.S. and other English-speaking universities around the world. The survey was conducted January through March 2021. More than 34,000 prospective international students to the U.S. responded to the survey. In all, nearly 84,000 prospective students for all countries completed the survey. Survey data were weighted by total enrollment origins for each country of study to make the survey more representative of the prospective international student population.^c

FWD.us questions in the survey examined, among other items, the desire and length of time prospective students would like to stay in the U.S. after graduation. Shares of those desiring to stay for different lengths of time were applied to average annual projected number of international student graduates between the 2021-2022 and 2030-2031 school years (as calculated in the description above), by degree program (undergraduate, graduate) and by academic field (professional/business service and healthcare/social assistance subject areas versus all other subjects).

These estimates allowed for an average annual number of international student graduates over the decade who would like to stay and work permanently in the U.S., defined here as four years or longer, if a visa pathway were easily accessible to them.^d

LABOR FORCE AND ECONOMIC DATA

Bureau of Labor Statistics data were used for [job opening](#) statistics, with specific attention to industries having a large share of highly skilled jobs, such as professional/business service and healthcare/social assistance industries.^e These industries had a persistent annual job opening rate of 5% or greater between 2017 and 2021. The average, seasonally adjusted, monthly job opening rate between 2017 and 2021 in these industries was applied to total positions in the same fields projected by the Bureau of Labor Statistics number of jobs in these industries in 2030. Data were accessed in October 2021.

^c Nationality distributions were gathered from [Project Atlas](#), listing the top ten nationalities of international students in Australia, Canada, the UK, and the U.S. in 2019.

^d Even though the survey was conducted among prospective 2021 students who may not graduate until 2025, the share of those indicating a desire to stay in the U.S. four or more years (permanent basis) was also applied to future student graduates currently studying in the U.S.

^e In administrative and survey data, all those enrolled or indicating future study in business management, science, technology, engineering, mathematics, or health industries were considered part of professional/business service and healthcare/social assistance industries.

Economic contributions for student graduates in this decade (2022 to 2030) were based on 2019 income data from American Community Survey (ACS). Undergraduate-degree graduates less than 25 years old employed in professional/business service and healthcare/social assistance industries were randomly selected, as were the same age group with an undergraduate education working in all other fields. Population targets for this random assignment were based on the average annual number of projected undergraduate degree program graduates from STEM-related (33,000) and other fields (17,000) who would like to stay in the U.S. four years or longer over the coming decade. Similarly graduate-degree graduates less than 30 years old employed in professional/business service and healthcare/social assistance industries were also randomly selected, as were the same age group with a graduate education working in all other fields. Population targets for this random assignment is based on the average annual number of projected undergraduate degree program graduates from STEM-related (33,000) and other fields (17,000) who would like to stay in the U.S. four years or longer over the coming decade (see earlier descriptions).

Economic gains for the decade were based on the total income between 2022 and 2030 before taxes for all graduating cohorts. Each graduating cohort's wages were increased by 3% each year.^f Federal and payroll taxes were based on tax estimates for market income by household type and household size from the Congressional Budget Office's 2017 ["Distribution of Household Income"](#) report. State and local taxes were based on estimated state averages of taxation by income from the Institute of Taxation and Economic Policy's 2018 report ["Who Pays? A Distribution Analysis of the Tax Systems in All 50 States."](#)

These national-level economic data were disaggregated by state, according to the state distribution during the random selection step. This permits projected state economic gains for an international student graduate permanent visa. The same tax structures were applied to these projected economic gains by state.

^f The 2021-2022 to 2030-2031 school year projection period was selected because migration projections of any group, including international students, are challenging to project for longer time periods. Limiting estimates to 2030-2031 involves projecting new international student enrollment only through 2026. Also, 2030 is the final year of data available for job projections from the Bureau of Labor Statistics. Lastly, the window for shorter-term residency for permanent stay inquired in the survey, and used for calculations in this report, is four to nine years. Terminating projections in 2030 allows us to safely assume little emigration within the four-to-nine-year interval; international students expressing the desire to stay in the U.S. four years or longer are not assumed to have left the U.S. during the projection period of 2022 to 2030.

