September 29, 2025

Submitted via Regulations.gov

Department of Homeland Security
Immigration and Customs Enforcement
Office of Regulatory Affairs and Policy
500 12th Street, SW
Washington, DC 20536

Re: Duration of Status Elimination NPRM
DHS Docket No. ICEB- 2025–0001
RIN 1653-AA95
90 Fed. Reg. p. 42070 to 42115 (comments due September 29, 2025)
Very high cost to the nation in deterring international STEM graduate students and postdocs if rule finalized as proposed

Dear Sir or Madam,

We are three immigration experts who have undertaken a detailed consideration over the last few months of over 20 years of administrative data from US Citizenship and Immigration Services (USCIS) and the Student and Exchange Visitor Information System (SEVIS), as well as Census data, to assess the role of international STEM students and especially STEM PhDs in the US STEM workforce and in fostering US economic growth.[i] We are confident the Department's Notice of Proposed Rule Making (NPRM or proposed rule) to eliminate so-called "Duration of Status" (D/S) admissions for international students, scholars, and researchers and replace it with fixed periods of admission and required extension of stay applications adjudicated by the Department fails to account for significant potential costs to the nation's innovative capacity and long-term prosperity, especially by ignoring the role of international STEM PhDs and postdocs in the US. Should the Department be interested in discussing our findings and analysis, we stand ready to meet and discuss.

Michael Clemens, an immigration economist, is Professor of Economics at George Mason University and Nonresident Senior Fellow at the Peterson Institute for International Economics. Jeremy Neufeld directs the high-skilled immigration policy work of the Institute for Progress, a nonpartisan think tank focused on innovation policy, including co-publishing the Techno-Industrial Policy Playbook. Amy Nice is a leading thinker on STEM immigration who focuses on using evidence-based research to find practical solutions to immigration policy problems as a Counsel at the Institute for Progress and Fellow at Cornell Law.

FATAL FLAWS IN THE DEPARTMENT'S NPRM TO ELIMINATE D/S FOR F-1 AND J-1 VISA HOLDERS

We estimate that DHS's failure to properly account for the costs involved and correctly weigh the risks and benefits of its proposal ignores costs that will rise each year, reaching an annual loss of as much as $72–145 billion by ten years into the future. This *annual* cost is more than 22x the *cumulative total* cost of $3.3 billion the Department identifies as the ten-year cost of the rule. The large difference arises because we account for the role of international students, scholars, and researchers in the US STEM workforce and the innovation that drives rising productivity in the US economy, and the Department does not; and because we expect that such individuals will indeed be deterred in coming to the United States in the first instance *as a result of this rule as proposed*, and the DHS impact analysis does not.

DHS makes clear in the NPRM preamble explanation in the Federal Register and the Regulatory Impact Analysis (RIA) in the DHS docket that national security is one of the primary justifications for the proposed rule.[ii] This justification is not inappropriate given the commitment the Department has to, and the interconnectedness between, providing additional mechanisms to exercise agency oversight that allow DHS to vigorously enforce US

immigration law, protecting the integrity of the F-1 and J-1 visa categories, and promptly detecting national security concerns. We are not aware of legitimate and compliant stakeholders, whether individual international students and scholars, schools, employers, program sponsors, or their associations, that object to these purposes. But the complex web of national security necessitates the Department do more than restate priorities of oversight, integrity, and prompt detection. For example, as a matter of the nation's security, Congress included as part of the National Defense Authorization Act an instruction to the National Academies of Sciences, Engineering, and Medicine to study international talent programs employed by and in the United States.[iii] In response to this statement of work, a 2024 National Academies report concluded, in essence, that the primary if not sole global talent pipeline for the United States is the international students, scholars, and researchers attracted to U.S. university campuses. "The U.S. has a talent program," the National Academies committee chair said, "It's called graduate school."

Yet, in several critical ways the Department's Notice of Proposed Rulemaking fails to account for the vital national security interest of retaining this talent pipeline of international STEM experts,[iv] almost all of whom first come to the United States on F-1 and J-1 visas. In particular, and without a fulsome explanation, the NPRM renders some of its most direct and negative impacts to international PhD students and postdoctoral fellows at the nation's graduate schools in F-1 and J-1 visa categories.

The Department's NPRM (1) does not recognize serious risks of its approach with regard to deterring international students, scholars, and researchers generally and international PhD students and postdoctoral fellows specifically, and (2) does not properly establish the national-level costs of its proposed approach.

(1) Proposed Rule Understates or Ignores Risks Concerning Reduction in Enrollment Generally and for PhDs and Postdocs Specifically

This comment is relevant to the following specific sections of the NPRM and RIA: In the NPRM, the Policy Justification for General period of admission for F and J nonimmigrants, Extension of stay; Summary of Costs and Benefits; and Regulatory Amendments for 214.2(f)(5) (periods of stay for F-1s), 214.2(f)(7) (extensions for F-1s), 214.2(f)(10) (extensions for F-1s seeking OPT), 214.2(j)(1)(ii) (periods of stay for J-1s), 214.2(j)(vii) (pending extensions of stay for J-1s). In the RIA, the Summary and Potential reduction in participation sections.

This part of our comment challenges the risk recognition and weighing employed by the Department of Homeland Security.

DHS states in the NPRM and RIA that if F-1 and J-1 visa holders choose to study and research in another country because of the proposed D/S rule then the reduced demand "could" result in a decrease in enrollment, therefore impacting school programs in terms of foregone tuition and other fees, jobs in communities surrounding schools, and the U.S. economy. But DHS concedes in the NPRM only that the proposed rule "may have a marginal impact on nonimmigrant student enrollment."[v] In the RIA, DHS confidently "maintains that there is a wide range of benefits from pursuing an academic program in the United States that may outweigh the impacts from the admission for a fixed period."[vi]

The facts on international student deterrence say otherwise. In anticipation of the Department's publication of the proposed D/S rule, NAFSA: Association of International Educators conducted surveys in August and September of current graduate students and postdoctoral fellows in the US and prospective students outside the country. The responses of over 1,000 current F-1 and J-1 visa holders, primarily PhD students and postdoctoral fellows, and over 600 prospective students, two-thirds of whom are seeking Masters-level or Bachelors-level degrees, do not

align with the Department's rosy picture of only minimal reductions in enrollment. Overall, 49% of all respondents to the current student survey said they would not have enrolled in the first place had Duration of Status been replaced with a fixed period of admission. [vii] And 16% fewer prospective students said they were likely to enroll in U.S. programs if Duration of Status were replaced with a fixed period of admission.[viii]

DHS accords no special consideration of PhD students who in accredited US programs can almost never complete their degree in less than five years, and does not even mention postdoctoral fellows anywhere in the NPRM. With regard to PhDs (and anyone else who as a standard expectation requires more than four years to complete a program in either F-1 or J-1 status), DHS simply says that 79% of F-1s and J-1s complete their program within a 4-year period, and that while there is a "smaller proportion of students" not pursuing degrees typically completed in 4 years a fixed period of admission up to 4 years would not pose an undue burden to most nonimmigrant students.[ix] As the Center for Security and Emerging Technology explained in its 2020 comment to the prior NPRM on eliminating Duration of Status and replacing it with fixed periods of admission, this reasoning is incomplete:

> "First, foreign doctoral students are a small category relative to undergraduates and masters' students, but not in the absolute: tens of thousands of foreign-born STEM PhD students graduate from U.S. universities every year. The Proposed Rule will affect most of these students, which is clearly a significant burden. Second, and more fundamentally, the costs of the Proposed Rule depend not only on how many students are affected, but on each student's contributions to America's prosperity and national security. There may be relatively few PhD students, but in important respects, each one has a much greater impact; PhD students are more advanced, more specialized, and more engaged in teaching and research than students on shorter programs, such as undergraduates and masters' students. Burdening and deterring this important group will cause harm disproportionate to the number of individual students who are affected."

Looking again at the current student survey, but considering only those PhD students and postdoctoral fellows currently in the US who also said they were planning to try to remain for employment experience in their field after completing their program, and thus excluding those who aren't interested in staying in the US in any event, 48% of PhDs and 33% of postdocs reported they would not have initially come to the US for their program if there was a fixed period of admission of up to four years with the ability to request extensions of stay adjudicated by DHS. [x] Of critical import to our analysis of what we call the "front door" STEM talent pipeline (described below), more than 80% of the 1,039 current student survey respondents were in STEM fields (including 35% in the physical and natural sciences, 19% in biology and biomedical sciences, 16% in engineering). [xi]

We conclude that it is inevitable that if the Duration of Status Elimination rule is finalized as proposed that there will be a precipitous and sustained reduction in PhD and postdoctoral enrollment as a result. We ask that the Department either abandon this proposal or add regulatory text that provides an exception to the 4-year fixed period of admission for PhD students and postdoctoral fellows.

(2) <u>Proposed Rule Fails to Account for National Interests in STEM Workforce and Economic Prosperity</u>

This comment is relevant to the following specific sections of the NPRM and RIA: In the NPRM, Costs and Benefits concerning Affected population, Costs to schools and enrollments, Quantitative costs, Qualitative costs; Discussion of Proposed Rule concerning Extension of stay, Requirements for admission, and New process for extension of stay. In the RIA, Estimating EOS requests for F and J nonimmigrants; Costs and benefits of the proposed rule; Total cost estimates including transfers.

The proposed rule *ignores* altogether the costs to the *nation*. This part of our comment challenges the cost calculation by the Department of Homeland Security.

A. There is no consideration of the role of impacted F-1 students on the US STEM workforce.

In order to understand the role of individuals who first come to the United States as F-1 visa holders in degree-granting programs, we studied data from both USCIS and SEVIS. While the Department of Homeland Security in this D/S rulemaking did not repeat the required extensive data cleaning steps in order to assess the impacts of the proposed provisions with current data and instead used FY2016-2018 SEVIS data extracted in 2019[xii] for its 2020 rulemaking effort, we reviewed 20 years of administrative data obtained through a Freedom of Information Act (FOIA) request, and completed extensive data cleaning and analysis. We then summarized the "front door" pipeline for international STEM talent coming to the United States, which as the National Academies noted is primarily through the nation's graduate schools.

The 'Front Door' Pipeline: Principal channels for transition from F-1 student visas to long term (>6 years) STEM workforce and PhD-level work in the United States

	All		STEM		PhD	
	Num.	%	Num.	%	Num.	%
Graduates (F-1), average per year 2018–2022	225,752		103,836		22,687	
Short term (OPT)						
F-1 to OPT	121,962	54.0	66,097	63.7	15,255	67.2
F-1 but no OPT	103,790	46.0	37,739	36.3	7,432	32.8
Medium term (nonimmigrant work visas)						
OPT to H-1B	35,479	15.4	23,919	33.4	5,987	27.8
OPT to 'other' (O-1, E-3, H-1B1, TN)	2,523	1.1	864	0.8	679	3
F-1 to H-1B without OPT	19,866	8.8	14,127	13.6	2,461	10.8
F-1 to 'other' without OPT	1,204	0.5	488	0.5	327	1.4
Long term (permanent residency, extended H-1B)						
H-1B to EB-1, EB-2, EB-3	22,709	10.1	15,611	15.0	3,466	15.3
'Other' visa to EB-1, EB-2, EB-3	181	0.1	66	0.1	49	0.2
Extended H-1B (>6 years)	19,372	8.6	13,316	12.8	2,957	13

'All' graduates are all completions of bachelor's, master's, or doctoral degrees in all fields of study by F-1 visa holders in a given year. 'STEM' graduates are all completions at all degree levels by F-1 visa holders in DHS-designated STEM fields only. 'PhD' means all completions of doctoral degrees by F-1 visa holders in all fields, not just STEM. In the table, "%" means percentage of the original F-1 graduation cohort in the first row that eventually makes each transition. Numbers are averages over the years 2018–2022. "Other" nonimmigrant work visas are O-1, E-3, H-1B1, and TN. The source is full-universe administrative data from SEVIS 2004–2023, obtained by request from DHS under the Freedom of Information Act.

As is evident from the administrative data, a notable portion of the nation's STEM workforce first enters the United States as international students at the nation's research universities. According to USCIS data, from 2018-

2023, more than 55,000 H-1Bs were awarded to F-1 students per year on average.[xiii] Indeed, administrative data show that 51% of all H-1B petitions by cap-subject employers from 2021-2024 were for F-1 students.

B. The cost calculation for the proposed elimination of Duration of Status is inaccurate.

The economic research literature contains very extensive evidence—leading to an overwhelming consensus among economists[xiv]—that high-skill immigration *causes* large increases in productivity and economic growth in the United States. These effects are largest for immigrants with STEM training. The increase in US city-level productivity caused by inflows of foreign STEM workers from 1990 to 2010 is sufficient in magnitude to explain between 30 and 50% of *all* aggregate productivity growth in the United States during that period.[xv] The influx of highly skilled immigrant college graduates to the United States during the 1990s caused a 12–21% rise in the annual number of high-technology innovations reflected by annual patent applications, which in turn raised US GDP per capita by between 1.4 and 2.4 percent—the equivalent, in today's dollars, of adding $267–458 billion to the US economy each year.[xvi] A very large and essentially uncontested body of research finds that these positive effects on productivity and growth arise from high-skill STEM immigrants' effects on new business formation, scientific discovery, and the patenting of new economically valuable ideas, including STEM immigrants' positive effects on innovation *by natives*.[xvii]

The economic literature collectively suggests that a substantial reduction in the supply of foreign talent to the US workforce will have large, negative, and lasting effects on productivity and economic growth in the United States. We can approximate the magnitude of those effects using the productivity effects estimated by Peri et al.,[xviii] who estimate the elasticity of annual growth in Total Factor Productivity (TFP) to the share of the workforce comprising high-skill foreign STEM workers. They estimate an increase of 0.27–0.54 percentage points in annual TFP growth caused by each percentage point increase in high-skill immigrant STEM workers as a fraction of the overall labor force.

We can use this estimate to consider the overall economic growth impact implied by the "front door" of transitions we have assembled from F-1 student status to the nation's workforce, which we have described above based on administrative data. To be conservative, we suggest calculating the impact of a 10% reduction in new enrollments in degree-granting programs by F-1 students as a result of Duration of Status elimination – at the top of our "front door" pipeline. We calculate that reducing the number of F-1 graduates by 10% because of a new fixed period of admissions rule would itself reach an annual loss of as much as $72-145 billion by ten years into the future.

The 10% reduction of a future flow to the "front door" talent pipeline is indeed quite conservative. Besides the fact that the recent student surveys identified a higher percentage of both current and prospective students that would be deterred from coming to the US because of the D/S policy shift, the published proposed terms of D/S elimination include a new system of required Extensions of Stay (EOS) for all OPT and STEM OPT applicants that seems destined to lead to expirations of status before OPT and STEM OPT can be granted. The up-to 240 days DHS has allowed itself to adjudicate a new, large workstream of such EOS applications, which it estimates to be 220,122 new EOS requests annually for F-1s and 240,583 additional EOS requests annually for J-1s,[xix] is best understood as creating sufficient uncertainty about timely EOS adjudications to ultimately discourage the ability of F-1 nonimmigrants to secure US employment experience in their field of study through OPT or a STEM OPT extension. If the D/S elimination rule goes into effect without changes to the EOS process as proposed in the published NPRM, it may be that a much larger reduction scenario is closer to the end result of the D/S rule alone, because F-1s may ultimately see their realistic access to OPT removed, leading to a future further reduction in F-1 degree-granting students coming to the US. The recent surveys of current and prospective students make clear that, standing alone, reducing access to OPT will have a very large and negative impact on future international

student enrollments at US colleges and universities at all degree levels, with 54% of current students and 29% of prospective students reporting they would not come to the US for a degree without access to OPT. [xx]

Moreover, though, the proposal to eliminate D/S admissions is part of a suite of regulatory changes the administration has announced DHS will pursue this year, with other, related rulemakings coming concerning availability of post-completion OPT and a STEM OPT extension as well changes to H-1B access based solely on Wage Level on the Labor Condition Application. In our working paper,[xxi] we detail our methodology and calculation of the impact of the *combined* effect of all three expected new regulations (eliminating D/S, reducing OPT, and restricting H-1B), attaching a realistic 33% reduction in international students, scholars, and researchers coming to the US, and have employed the same method to calculate the impact of a 10% reduction to the future flow of F-1s as a result of the Department's proposed D/S elimination.

An ongoing reduction of 10% in the number of foreign STEM graduates from US universities reduces the total supply of high-skill STEM workers in the United States by 1.9%. Because the 8 million high-skill STEM workers in the US economy represent 4.7% of the US labor force, the 1.9% reduction in high-skill foreign STEM workers equates to a 0.09 percentage-point change in high-skill STEM workers as a fraction of the labor force.

The Peri et al. elasticity thus implies a reduction of 0.024–0.048 percentage points in annual TFP growth, arising from ongoing reduction of one tenth of the number of high skill foreign graduates from US universities. This is comparable in magnitude to the independent estimates of Hunt and Gauthier-Loiselle,[xxii] which together with the effects jointly implied by Kerr and Lincoln[xxiii] and Peri et al., represent the best available evidence on the macroeconomic effects of high-skill foreign STEM workers' presence in the United States economy.

This is a very large impact, which cumulates over time. Over a ten-year period, lost productivity growth of 0.024–0.048 percentage points each year causes GDP at the end of that decade to be 0.239 to 0.478 percent smaller than it otherwise would have been. This is a percent decline in annual GDP, *not* a percentage-point decline in annual *growth* of GDP.

If such a loss occurred today, amid the United States's $30.4 trillion economy,[xxiv] it would be valued at $72-145 billion. That is, this would be the loss to today's US economy if the stock of high-skill foreign STEM workers had been 1.9% lower, in each of the past 10 years, than it actually was—the loss that would have arisen from a longtime reduction of one tenth in the number of foreign STEM students graduating from US universities. That reduction in GDP equates in size to the loss the US economy would suffer from the *disappearance* of the entire economy of the state of Delaware, New Hampshire, or the entire Research Triangle metropolitan area.

The challenges facing America's high-skill workforce would extend far beyond elite coastal enclaves. The impacts ripple through innovation clusters nationwide, threatening not just individual institutions but entire *regional economies* built around science, technology, and higher education. While Silicon Valley and Boston capture imaginations, the dependence on international STEM talent spans the American map. The South's growing technology corridors—from North Carolina's Research Triangle to Texas's emerging tech centers—depend on international talent pipelines to compete globally. Even smaller metropolitan areas like Rochester, New York, or Madison, Wisconsin, have built innovation economies around universities that attract significant international student populations.

The Global Innovation Index identifies 23 U.S. clusters among the world's top 100 science and technology clusters, demonstrating the geographic diversity of American innovation. These clusters include San Jose-San Francisco and Boston-Cambridge but also Austin, Cincinnati, Denver-Boulder, Pittsburgh, and Raleigh-Durham. Each relies heavily on the international student pipeline to maintain their competitive edge. But retention through the "front

door" pipeline varies widely by geography. Between 2012 and 2020, the Mid-Atlantic lost more than 100,000 foreign-born bachelor's graduates, 180,000 foreign-born master's graduates, and 10,000 foreign-born PhDs, including migration to other regions. The Northeast does even worse at retention. Meanwhile, the West Coast does best of all, but the Midwest and South significantly outperform the Northeast and Mid-Atlantic.

These impact estimates are inherently somewhat uncertain. For that reason, DHS proceeds as if such impacts are zero. This method is inadequate. It fails to meet minimal standards of quality demanded of economic analysis by qualified experts in cost-benefit analysis. In other words, the mere fact that an economic impact is somewhat uncertain does not imply that the best estimate of that impact is zero. The consensus of peer-reviewed economic research on the impacts is question is that they are very large.

We conclude that DHS has grossly underestimated the potential negative impact of its new system of fixed periods of stay as a replacement for Duration of Status. As such, we ask the Department either abandon this proposal or provide revised regulatory text that creates a less cumbersome system. If less burdensome approaches that also meet the Department's goals for oversight, integrity, and prompt detection are not within DHS's command or are not suggested by other commenters, the Department should restart rulemaking with an Advanced Notice of Proposed Rule Making to better collect ideas and options from interested parties on all sides of the issues presented.

CONCLUSION

When federal agency policies, like Duration of Status, are of the type and character that they can only be shifted through new public regulations promulgated in compliance with the Administrative Procedure Act, the Department of Homeland Security must not ignore significant, non-speculative costs to America and Americans.

We look forward to seeing a careful response from DHS, an abandonment of this proposal or a revised, less burdensome approach to establishing fixed periods of time for F-1 and J-1 visa holders that accounts for PhD students and postdoctoral fellows, and the opportunity, if you find it appropriate, to discuss the costs and concerns we have studied and summarize here.

We attach to this comment a Working Paper, which details the methods and data sources used in this analysis.

Thank you for the opportunity to participate in the rulemaking process.

Respectfully submitted,

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ENDNOTES

[i] "Brain Freeze: How International Student Exclusion Will Shape the STEM Workforce and Economic Growth in the United States," Clemens, M, Neufeld, J, Nice, A (attached, and forthcoming by Institute for Progress and IZA Institute of Labor Economics).

[ii] See eg, discussion in NPRM p. 42079 and RIA p. 43. National security is referenced over 15 times in each the NPRM and RIA.

[iii] Section 238, NDAA for FY2021, Pub.L. 116-283, enacted January 1, 2021 (Mac Thornberry National Defense Auth. Act).

[iv] A bipartisan group of 70 national security experts and officials made these points in a May 2023 letter (reported in Axios) imploring congressional action on international scientific and engineering talent because when America attracts global STEM talent many "will be working in Pentagon-identified critical technology areas."

[v] NPRM at p. 42101 on only marginal impact expected to international student enrollments..

[vi] RIA p. 43 on other benefits of studying in the US that will outweigh any perceived negatives of the new fixed periods of admission.

[vii] Surveys on International Student Talent Pipeline, summarizing Key Results and providing Tabulated Results. The Institute for Progress and NAFSA conducted three surveys to understand the international student talent pipeline and how employers use the H-1B program to hire international talent.

[viii] Id.

[ix] NPRM p. 42082.

[x] Surveys on International Student Talent Pipeline, summarizing Key Results and providing Tabulated Results. The Institute for Progress and NAFSA conducted three surveys to understand the international student talent pipeline and how employers use the H-1B program to hire international talent.

[xi] Id.

[xii] RIA p. 12 on the complexity of utilizing data from the document-centric recordkeeping of SEVIS.

[xiii] USCIS, Change of Status for Nonimmigrants: F-1, F-2, H-4, J-1, J-2 Fiscal Year 2018 – 2023.

[xiv] Chelsea Vail, "What Economists Think about Admitting Highly Skilled Immigrants," Chicago Booth Review, 2016.

[xv] Peri, Giovanni, Kevin Shih, and Chad Sparber. "STEM workers, H-1B visas, and productivity in US cities." *Journal of Labor Economics* 33, no. S1 (2015): S225-S255.

[xvi] Hunt, Jennifer, and Marjolaine Gauthier-Loiselle. "How much does immigration boost innovation?." *American Economic Journal: Macroeconomics* 2, no. 2 (2010): 31-56.

[xvii] Economists have found:

- Increases in foreign master's graduates driven by an unrelated force majeure cause more entrepreneurship in exposed regions, including by US natives (Beine, Michel, Giovanni Peri, and Morgan Raux. "The Contribution of Foreign Master's Students to US Start-Ups." No. w33314. National Bureau of Economic Research, 2024);
- High skill workers who entered the United States on student visas have much larger rates of patenting, publishing, earning, and entrepreneurship than otherwise comparable natives (Hunt, Jennifer. "Which immigrants are most innovative and entrepreneurial? Distinctions by entry visa." Journal of Labor Economics 29, no. 3 (2011): 417-457);
- Foreign STEM PhD students report greater preference for entrepreneurship than their US native colleagues (Roach, Michael, Henry Sauermann, and John Skrentny. "Are foreign STEM PhDs more entrepreneurial? Entrepreneurial characteristics, preferences, and employment outcomes of native and foreign science and engineering PhD students." In The Roles of Immigrants and Foreign Students in US Science, Innovation, and Entrepreneurship, pp. 207-228. University of Chicago Press, 2019);

- Historical increases in barriers against skilled immigration caused reduced scientific productivity in the US as a whole (Moser, Petra, Alessandra Voena, and Fabian Waldinger. "German Jewish émigrés and US invention." *American Economic Review* 104, no. 10 (2014): 3222-3255, and Moser, Petra, Sahar Parsa, and Shmuel San. "Immigration and Innovation: Lessons from the Quota Acts." (2025). Working paper, Dept. of Economics. New York University;
- Increases in foreign STEM PhD student inflows to the United States driven by unrelated shocks overseas cause increased innovation and discovery in US academic departments (Stuen, Eric T., Ahmed Mushfiq Mobarak, and Keith E. Maskus. "Skilled immigration and innovation: evidence from enrolment fluctuations in US doctoral programmes." *Economic Journal* 122, no. 565 (2012): 1143-1176, and Gaulé, Patrick, and Mario Piacentini. "Chinese graduate students and US scientific productivity." *Review of Economics and Statistics* 95, no. 2 (2013): 698-701.
- Roughly one third of the positive effect of foreign master's graduates on US entrepreneurship arises from business created by natives (Beine et al. (2024), supra);
- Immigrant inventors cause their native colleagues to patent more new ideas (Bernstein, Shai, Rebecca Diamond, Abhisit Jiranaphawiboon, Timothy McQuade, and Beatriz Pousada. The contribution of high-skilled immigrants to innovation in the United States. No. w30797. National Bureau of Economic Research, 2022); and
- Increases in foreign STEM worker prevalence cause: increased patenting in US cities (Winters, John. "Foreign and Native-Born STEM Graduates and Innovation Intensity in the United States." No. 8575. Institute of Labor Economics (IZA), 2014), increased entrepreneurship in US regions (Tareque, Inara S., Jorge Guzman, and Dan Wang. "High-skilled immigration enhances regional entrepreneurship." *Proceedings of the National Academy of Sciences* 121, no. 37 (2024): e2402001121), increased employment of high-skill native workers (Kerr, Sari Pekkala, William R. Kerr, and William F. Lincoln. "Skilled immigration and the employment structures of US firms." *Journal of Labor Economics* 33, no. S1 (2015): S147-S186), product innovation (Khanna, Gaurav, and Munseob Lee. "High-skill immigration, innovation, and creative destruction." In *The roles of immigrants and foreign students in US science, innovation, and entrepreneurship*, pp. 73-98. University of Chicago Press, 2019), and entrepreneurial success (Dimmock, Stephen G., Jiekun Huang, and Scott J. Weisbenner. "Give me your tired, your poor, your high-skilled labor: H-1B lottery outcomes and entrepreneurial success." *Management Science* 68, no. 9 (2022): 6950-6970).

[xviii] Peri et al (2015), *supra* Note xv.

[xix] RIA p. 21 and 24 on the number of F and J nonimmigrants requiring an Extension of Stay per year under the DHS proposal.

[xx] Surveys on International Student Talent Pipeline, summarizing Key Results and providing Tabulated Results. The Institute for Progress and NAFSA conducted three surveys to understand the international student talent pipeline and how employers use the H-1B program to hire international talent.

[xxi] "Brain Freeze: How International Student Exclusion Will Shape the STEM Workforce and Economic Growth in the United States," Clemens, M, Neufeld, J, Nice, A (attached, and forthcoming by Institute for Progress and IZA Institute of Labor Economics). The Brain Freeze working paper analyzes the *combined* effect of DHS instituting three policies that will deter international students at different points in the "front door" talent pipeline (eliminating D/S, reducing OPT, and restricting H-1B), and as such identifies a larger loss valued at $240-482 billion by ten years into the future, based on a sustained 33% reduction of the number of foreign STEM students graduating from US universities.

[xxii] Hunt and Gauthier-Loiselle *supra* Note xvi.

[xxiii] Kerr, William R., and William F. Lincoln. "The supply side of innovation: H-1B visa reforms and US ethnic invention." *Journal of Labor Economics* 28, no. 3 (2010): 473-508.

[xxiv] In the most recent data available at the time of writing, the GDP of the United States in fiscal 2025Q2 was $30.35 trillion: U.S. Bureau of Economic Analysis, Gross Domestic Product [GDP], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GDP, September 18, 2025.