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Research paper

Impact of U.S. Immigration Policies and Restrictions on International Students and Scholars: Lessons for Future Higher Education

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ABSTRACT

International students and scholars have long been central to the academic, economic, scientific, and internationalization missions of U.S. higher education. The United States has historically benefited from attracting educated individuals who contribute to research, innovation, entrepreneurship, institutional diversity, and the national scientific workforce. However, an increasingly complex and restrictive immigration environment has created uncertainty regarding international students' and scholars' ability to enter the United States, pursue education, conduct research, obtain practical training, travel internationally, and transition into the U.S. workforce. This integrative literature review examines the effects of contemporary U.S. immigration policies and administrative restrictions on international students and scholars and considers their implications for U.S. higher education, institutional internationalization, and global competition for talent. Drawing on interdisciplinary scholarship and policy literature, the review synthesizes evidence concerning visa policies, immigration restrictions, employment and training regulations, travel requirements, and changing federal administrative practices. Findings indicate that heightened uncertainty and restrictive policies can negatively affect educational experiences, career planning, institutional engagement, recruitment decisions, and willingness to pursue long-term opportunities in the United States. These developments may also influence enrollment, research productivity, international partnerships, and the nation's ability to attract and retain global talent. The review further considers whether current policies may contribute to a shift from "brain gain" toward "brain drain" by encouraging educated international students and scholars to pursue opportunities in competing destinations. Implications for policymakers and higher education institutions emphasize predictable, transparent, and internationally competitive immigration policies that support academic mobility, innovation, and U.S. leadership in global higher education.

Keywords: international students, scholars, immigration policy, duration of status, optional practical training, curricular practical training, brain drain, brain gain, higher education, talent mobility

International students and scholars occupy a distinctive position within the U.S. higher education ecosystem. They are simultaneously students, researchers, future professionals, cultural ambassadors,

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members of campus communities, and participants in a global competition for knowledge and talent. For decades, U.S. colleges and universities have benefited from an immigration and international education system that enabled talented individuals from around the world to enter the country, pursue advanced education, participate in research, undertake practical training, and, in some cases, transition into the U.S. workforce (Gjini & Gjini, 2026; Gjini & Hernandez-Gantes, 2025).

The scale of this contribution is considerable. During the 2024–2025 academic year, international students contributed approximately $42.9 billion to the U.S. economy and supported more than 355,000 U.S. jobs (National Association of Foreign Student Advisers [NAFSA], 2025a). Yet the United States is no longer operating in an environment characterized simply by increasing international student mobility. Recent changes in visa policy, country-based entry restrictions, heightened administrative scrutiny, uncertainty surrounding student employment, and a fundamental restructuring of the longstanding Duration of Status framework have created a considerably more uncertain environment for international students and scholars.

The issue is consequential because international education is not simply an educational phenomenon; it is also a talent-migration mechanism. International students who receive U.S. degrees represent an important source of highly educated workers, researchers, entrepreneurs, health professionals, engineers, scientists, and other skilled professionals. Research demonstrates that changes in the openness of the U.S. labor market can meaningfully influence international student enrollment. Shih (2016), for example, found that a reduction in H-1B availability following the 2003 H-1B cap reduction was associated with an approximate 10% decline in foreign enrollment. More recent research similarly demonstrates that increased F-1 visa restrictiveness disproportionately discourages academically stronger international students from pursuing U.S. higher education (Chen et al., 2023).

Consequently, immigration restrictions may generate an unintended policy paradox: policies designed to enhance immigration control may simultaneously weaken the United States' capacity to attract precisely the highly educated international population that contributes most substantially to scientific advancement, economic productivity, and institutional internationalization. This article therefore examines a central question: Are current U.S. immigration policies strengthening national human capital through brain gain, or are they increasingly producing the conditions for brain drain and the redistribution of global talent to competing countries?

The article argues that the answer is not binary. The United States continues to possess extraordinary structural advantages—including world-class universities, research infrastructure, labor market opportunities, and established international networks—that sustain substantial brain gain. However, increasingly restrictive, unpredictable, and administratively burdensome immigration policies risk converting a historically durable competitive advantage into a comparative disadvantage.

THEORETICAL FRAMEWORK

This review integrates five complementary theoretical perspectives: human capital theory, migration systems and push-pull theory, social capital and network theory, policy uncertainty (chilling-effect) theory, and brain drain/brain gain/brain circulation theory. The first four perspectives operate primarily at the level of the individual student, scholar, or institution, explaining why and how mobility decisions are made; the fifth operates at the level of the nation and the higher education system, providing the interpretive lens through which the aggregate consequences of those decisions are understood. Figure 1 presents a visual integration of the framework, and the "Integration of the Theoretical Framework" subsection below explains how the five perspectives combine.

Human capital theory

Human capital theory (Becker, 1964) provides a foundational explanation for international educational mobility. Individuals invest in education because education increases knowledge, skills, productivity, earnings, and future opportunities. International students represent an especially important form of human-capital investment because the investment occurs across national borders. From the perspective of

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destination countries, international students may represent imported human capital: U.S. universities provide education and research training, and U.S. employers may subsequently benefit from graduates' knowledge and skills. The relationship becomes especially important at the graduate level, where international students frequently participate in research laboratories, teaching, and funded research projects; immigration policies that influence international enrollment therefore also influence the future supply of highly educated labor. Human capital theory has also been critiqued for assuming a uniformly rational and linear relationship between educational investment and economic return, one that can understate the roles of social background, labor-market segmentation, and non-economic motivations in shaping mobility outcomes (Marginson, 2019). This review therefore treats human capital theory as a necessary but partial explanation, to be read alongside the social capital and policy-uncertainty perspectives introduced below.

Migration systems and push-pull theory

Migration is influenced by interacting conditions in sending and receiving countries. Push factors may include limited educational opportunities, political instability, or inadequate research infrastructure at home; pull factors may include prestigious universities, employment opportunities, research funding, political stability, and attractive post-study career pathways (Lee, 1966; Stanojoska & Petrevski, 2012). Historically, the United States has possessed exceptionally strong pull factors, but international student decision-making increasingly incorporates immigration predictability as a destination characteristic. A student may be admitted to a highly ranked institution but nevertheless choose another destination if the perceived probability of obtaining a visa, entering the country, completing the degree, securing practical training, or transitioning into employment is uncertain (De Haas, 2021). Chen et al. (2023) found that greater anticipated F-1 visa restrictiveness reduces international student enrollment and that academically stronger students are particularly responsive to changes in visa restrictiveness, underscoring that immigration policy has become an increasingly important component of the international higher education "pull factor."

Brain drain, brain gain, and brain circulation

The traditional concept of brain drain refers to the migration of highly educated individuals from their countries of origin to countries offering greater professional, educational, or economic opportunities. The corresponding concept of brain gain describes the benefits received by destination countries when highly educated individuals enter their economies. The relationship is more accurately conceptualized as brain circulation when international mobility generates benefits across both sending and receiving societies: international graduates may remain in the United States, return home with advanced knowledge, establish international businesses, maintain research collaborations, or become part of transnational professional networks. Research provides strong evidence that international education contributes to U.S. brain gain. Shih (2016) demonstrated the relationship between skilled-labor-market openness and international enrollment, while Bound et al. (2021) emphasized the importance of international students in the supply of highly educated workers and in the financing of U.S. higher education. West (2011) similarly argued that a deliberate "brain gain" strategy—one that actively and predictably welcomes highly skilled and highly educated individuals—functions as a form of national economic and innovation policy rather than an incidental byproduct of higher education exports, a framing that anticipates the policy recommendations developed later in this review. More recent research reinforces this argument: Khanna (2026), examining high-skill migration from Asia to the United States since 1990, found that such migration accounted for over one-third of U.S. growth in software development and roughly a quarter of the growth in scientists, engineers, and physicians, while simultaneously producing brain gain and brain circulation effects in Asian sending economies. The critical policy question, therefore, is not whether brain gain exists—it clearly does—but whether U.S. policies remain sufficiently attractive and predictable to sustain the country's historical position as the preferred destination for global talent.

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Social capital and international networks

International students and scholars also generate social capital: the durable stock of resources, information, and support that individuals and institutions can access through networks of relationships (Portes, 1998). Their relationships with faculty, peers, employers, laboratories, professional associations, and alumni networks create connections that transcend national borders. These networks benefit U.S. universities by facilitating international research collaboration, increasing institutional global visibility, building international alumni and philanthropic networks, strengthening transnational entrepreneurship, supporting international recruitment, developing intercultural competencies among domestic students, and enhancing institutional internationalization more broadly. Consequently, the loss of international students and scholars has effects that extend well beyond enrollment figures.

Policy uncertainty and the chilling effect

A fifth theoretical perspective concerns policy uncertainty. Drawing on the broader economic-policy-uncertainty literature, which demonstrates that ambiguity about future government action can suppress investment and behavior independently of any specific policy change (Baker et al., 2016), this review treats immigration policy uncertainty as operating similarly in the higher education context: immigration policy affects individuals not only through formal legal restrictions but also through perceived uncertainty, and a policy can influence behavior even before it is fully implemented or even if it is never implemented at all. International students may ask whether they will receive a visa, be allowed to enter or re-enter the United States, complete their degree on schedule, participate in an internship, qualify for Optional Practical Training (OPT), or find an employer willing to sponsor them for longer-term status. When the answers to these questions become unpredictable, students and scholars may select alternative destinations. This is consistent with research showing that immigration-policy uncertainty and hostile political rhetoric measurably affect international students' perceptions, mental health, and reported intentions, and that visa and immigration policy challenges are independently associated with international faculty members' intentions to leave the United States (Feeney et al., 2023; Omotilewa & Johnson, 2025).

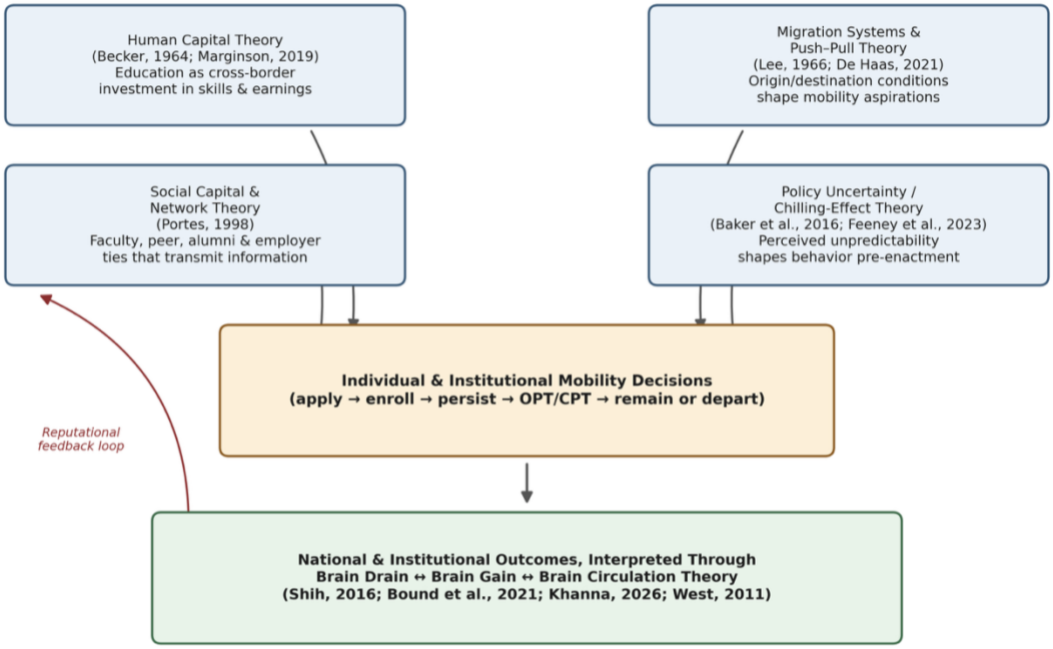
Integration of the theoretical framework

Figure 1 integrates these five perspectives into a single explanatory model. Human capital theory, migration systems and push-pull theory, social capital and network theory, and policy uncertainty theory operate as complementary, mutually reinforcing inputs into individual and institutional mobility decisions—the sequence of choices beginning with the decision to apply and culminating in enrollment, persistence, participation in practical training, and the eventual decision to remain in or depart from the United States. Human capital theory explains the underlying economic rationale for pursuing a U.S. education; push-pull theory explains how origin- and destination-country conditions, including immigration predictability, shape where that rationale is acted upon; social capital and network theory explains how information about those conditions is transmitted and trusted; and policy uncertainty theory explains why perceived risk, independent of formal legal change, can alter behavior at any point in the decision sequence.

These individual- and institutional-level decisions aggregate into national and institutional outcomes—enrollment trends, research productivity, retention, and economic contribution—that are best interpreted through brain drain, brain gain, and brain circulation theory. This fifth perspective functions as the integrating, outcome-level lens of the framework rather than a parallel input: it explains what the aggregated pattern of individual decisions means for the sending and receiving countries. Finally, the framework includes a reputational feedback loop (depicted at the left of Figure 1): national and institutional outcomes shape the information that circulates through social networks and, over time, the perceived predictability of the destination country, which in turn feeds back into the push-pull and policy-uncertainty inputs that shape the next cohort's decisions. This feedback loop is central to the review's argument that current policy volatility risks compounding effects over time rather than producing a single, bounded shock.

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Figure 1. *Integrated theoretical framework for U.S. immigration policy and international student and scholar mobility*



Note. Arrows indicate the direction of theoretical influence. OPT = Optional Practical Training; CPT = Curricular Practical Training.

METHOD

This study employed a systematic integrative literature review to synthesize research concerning the relationship between U.S. immigration policy and international students' and scholars' educational, professional, and research experiences. The integrative review method, as distinguished from a systematic review or meta-analysis, permits the combination of diverse methodologies and sources—including experimental and non-experimental empirical research, theoretical scholarship, federal regulatory text, and descriptive institutional data—into a single, coherent synthesis (Torraco, 2005; Whittemore & Knafl, 2005). This method was selected because the research question crosses multiple disciplinary areas, including higher education, economics, migration studies, public policy, international education, labor economics, and science policy, and because a purely systematic or meta-analytic approach would exclude the federal regulatory guidance and institutional survey data that are essential to understanding a rapidly evolving policy environment. Consistent with Whittemore and Knafl's (2005) five-stage framework, the review proceeded through problem identification, literature search, data evaluation, data analysis, and presentation. The review incorporated four categories of evidence: (a) peer-reviewed empirical research, (b) peer-reviewed conceptual and theoretical scholarship, (c) federal statutes, regulations, policy documents, and agency guidance, and (d) higher education and international education reports containing current enrollment and economic data. The policy analysis was updated through August 31, 2026, to capture the most recent federal developments.

Search strategy

The literature search covered publications from January 2000 through August 31, 2026, the date of the final search; this window was selected to capture the contemporary empirical and policy literature most relevant to current conditions, while a small number of seminal theoretical works published before 2000 (e.g., Becker, 1964; Lee, 1966) were retained on the basis of their continuing foundational status rather than

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recency. Because scholarship on immigration policy and the international education workforce changes quickly, searches of the academic databases were re-run at three points during manuscript preparation (initial search, mid-revision, and a final search on August 31, 2026) to capture newly published material.

Literature was identified through searches of major academic and policy databases and repositories, including ERIC, Google Scholar–indexed scholarly literature, PubMed, ScienceDirect, Wiley Online Library, SpringerLink, American Economic Association publications, the Federal Register, the U.S. Department of Homeland Security, U.S. Immigration and Customs Enforcement, U.S. Citizenship and Immigration Services, the U.S. Department of State, the Institute of International Education, and NAFSA: Association of International Educators. Search terms were combined using Boolean operators (e.g., "international student*" AND "immigration policy*"; "F-1 visa" OR "J-1 visa" AND restrict*) and included international students, United States, immigration policy, F-1 visa, J-1, international scholars, student visa, enrollment, immigration restrictions, visa restrictiveness, brain drain, brain gain, OPT, CPT, Duration of Status, and academic mobility.

Inclusion and exclusion criteria

Studies were included when they (a) examined international students, scholars, postdoctoral researchers, or academic mobility; (b) addressed U.S. immigration, visa, employment, or mobility policies; (c) examined educational, economic, academic, professional, or psychological outcomes; (d) were published in peer-reviewed journals, authoritative government sources, or recognized higher education organizations; (e) provided empirical, theoretical, or policy-relevant evidence; and (f) were available in English. Studies were excluded when they focused exclusively on domestic students, addressed immigration unrelated to higher education or highly skilled migration, lacked sufficient methodological or policy information, were opinion pieces without identifiable evidence, or duplicated another source. Because the purpose of this review was to examine both durable theoretical patterns and a rapidly changing policy environment, seminal studies were retained alongside contemporary research and current federal guidance.

Screening and selection process

Because this review followed an integrative rather than a PRISMA-registered systematic protocol, a fully reconstructed PRISMA flow diagram was not produced during the original search process. To provide readers with an approximate sense of the scope of the evidence base, the authors reconstructed screening counts from search-export and citation-management records: the combined database and repository searches returned approximately 189 records; after removing duplicates, approximately 69 unique records remained; title-and-abstract screening against the inclusion and exclusion criteria above excluded approximately 40 records (most commonly for addressing domestic students exclusively, addressing migration unrelated to higher education, or lacking sufficient methodological or policy detail); full-text review of the remaining approximately 80 records resulted in the exclusion of an additional 54 records; and 26 sources (peer-reviewed articles, federal regulatory and agency documents, and institutional reports) were ultimately retained for synthesis, as reflected in the reference list. These figures should be treated as approximate reconstructions rather than a prospectively logged PRISMA count, consistent with the integrative-review limitations discussed below.

Quality appraisal

Consistent with integrative review methodology, which accommodates methodologically diverse sources rather than applying a single standardized instrument (Whittemore & Knafl, 2005), no formal, published critical-appraisal checklist (e.g., the Mixed Methods Appraisal Tool or the Critical Appraisal Skills Programme tools) was applied in this review. Instead, methodological rigor and relevance were assessed by the two authors independently, using four author-consensus criteria: publication quality (peer-reviewed venue, editorial oversight, or, for non-peer-reviewed sources, issuance by a recognized federal agency or established higher education research organization); theoretical relevance to the five perspectives

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outlined above; methodological transparency (clearly described data, sample, and analytic approach for empirical sources, or clearly described legal and regulatory authority for policy sources); and consistency with contemporary scholarship and current federal guidance. Disagreements between the two authors about a source's inclusion or interpretation were resolved through discussion and, where necessary, reference back to the original source. Readers should note that this consensus-based process is inherently less standardized than a validated appraisal instrument, a point identified as a limitation of the review below.

Data extraction and analysis

The literature was coded according to the following analytical categories: visa accessibility; visa processing and administrative burden; travel and reentry; immigration-status uncertainty; Duration of Status and the new fixed admission-period framework; OPT and STEM OPT; CPT; J-1 exchange and research mobility; research collaboration; academic freedom and institutional climate; student recruitment and enrollment; retention and post-graduation employment; institutional financial effects; brain drain; brain gain; brain circulation; and global competition for talent. A thematic synthesis was subsequently conducted to identify recurring relationships between immigration policy and international educational mobility.

Evidentiary weighting

The sources synthesized in this review vary in evidentiary status and were weighted accordingly. Peer-reviewed empirical studies published in indexed journals (e.g., Chen et al., 2023; Feeney et al., 2023; Khanna, 2026; Shih, 2016) were treated as the strongest evidence for claims about enrollment, research productivity, and retention. Peer-reviewed theoretical and conceptual scholarship (e.g., Becker, 1964; De Haas, 2021; Portes, 1998) was treated as the basis for the theoretical framework rather than as empirical evidence. Federal statutes, regulations, and agency guidance (e.g., U.S. Department of Homeland Security, 2026; U.S. Citizenship and Immigration Services, 2026) were treated as authoritative primary sources for the legal and regulatory description of current policy, not as evaluative evidence of policy effects. Reports and press releases issued by higher education and international education organizations (e.g., Balatova, 2025; Institute of International Education, 2025; NAFSA, 2025a, 2025b) were treated as descriptive, organization-generated indicators of enrollment and economic trends rather than peer-reviewed empirical findings, and their figures are presented in this review with that caveat; where survey-based, as with the Institute of International Education's (2025) Fall 2025 Snapshot, the underlying data reflect a subset of reporting institutions rather than a full census. News reporting (e.g., Singh, 2026) was used only to document a specific, dateable administrative action and was corroborated where possible against institutional statements. No preprint sources were retained in the final reference list; where an early or preprint version of a source was identified during screening, the peer-reviewed published version was cited in its place.

Limitations of the review

Several limitations should be noted. First, this review followed an integrative rather than a fully protocol-driven systematic review methodology, and it did not employ a registered PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol; the screening counts reported above were reconstructed from search-export and citation-management records rather than logged prospectively, and readers seeking a fully reproducible systematic-review protocol should treat the synthesis presented here as an integrative policy review. Second, the quality-appraisal process relied on investigator consensus rather than a validated, published appraisal instrument, which is less standardized than instruments such as the Mixed Methods Appraisal Tool or the Critical Appraisal Skills Programme checklists. Third, because the underlying federal policy environment continues to change rapidly, portions of the policy description may be superseded by subsequent regulatory or administrative action after the review's August 31, 2026, cutoff. Fourth, enrollment and economic-impact figures drawn from the Institute of International Education's Fall 2025 Snapshot and from NAFSA are based on a survey subset of reporting institutions and organizational

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estimation methods rather than a full census, and should be interpreted as early, if directionally consistent, indicators rather than a final accounting of the 2025–2026 academic year.

CURRENT U.S. IMMIGRATION POLICY ENVIRONMENT

The end of duration of status

One of the most consequential recent developments is the U.S. Department of Homeland Security's (DHS) final rule, published in the Federal Register on July 17, 2026, which eliminates the longstanding "Duration of Status" (D/S) framework for F-1 students, J-1 exchange visitors, and replaces it with fixed admission periods—up to four years for F and J visa hoders and up to 240 days for nonimmigrants (U.S. Department of Homeland Security, 2026). Under the prior D/S framework, F-1 students could remain in the United States for as long as they maintained lawful status and pursued an authorized educational program, including authorized practical training. Under the new "admit until date" framework, nonimmigrants who need additional time must file an extension-of-stay application with U.S. Citizenship and Immigration Services, submit biometrics, and demonstrate continued eligibility before their authorized period expires.

The rule, which was initially scheduled to become effective on September 15, 2026, is currently facing legal challenges in federal court. Among its proposed provisions are new restrictions on academic mobility, including first-academic-year limitations on changing degree programs or majors and stricter constraints on program changes for graduate students. For doctoral students, postdoctoral researchers, and others whose educational or research trajectories do not conform neatly to a predetermined timeline, the shift represents a fundamental change in the relationship between academic progress and immigration status. Universities have accordingly begun building substantial new advising and compliance infrastructure, and institutions have emphasized to continuing students and incoming scholars the operational implications of the transition from D/S to a fixed admission period.

Visa restrictions and geographic uncertainty

Country-based entry restrictions have further complicated international mobility. Beginning in 2025, U.S. policy introduced significant entry restrictions affecting nationals of multiple countries, with additional restrictions implemented subsequently. Universities have reported that these policies affect not only students and scholars from directly affected countries, but also the broader perceived predictability of the U.S. immigration system. This phenomenon illustrates the importance of policy signaling international students evaluate not only formal rules that apply to them individually, but also the broader political and social environment surrounding international migration in the United States. As Grimm and Day (2022) observe, the practical experience of navigating U.S. student visa policy is shaped as much by implementation, institutional practice, and administrative discretion as by the formal text of the regulations themselves.

Curricular and optional practical training

Practical training represents another critical dimension of international student decision-making, because the ability to obtain U.S. work experience is a major component of the perceived value of a U.S. degree. U.S. Citizenship and Immigration Services continues to recognize OPT as a post-completion employment pathway for eligible F-1 students, including a 24-month STEM OPT extension for qualifying graduates in science, technology, engineering, and mathematics fields (U.S. Citizenship and Immigration Services, 2026). However, federal scrutiny of Curricular Practical Training (CPT) intensified sharply in late August 2026. On August 24, 2026, the Student and Exchange Visitor Program (SEVP), a component of U.S. Immigration and Customs Enforcement, issued guidance to designated school officials indicating that it had observed a growing number of CPT authorizations it viewed as inconsistent with the regulatory requirement that such training be an integral part of an established academic curriculum, and warned that institutions found out of compliance could lose their certification to enroll international students (Singh,

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2026). In the days following the memo, several universities, including the University of California, Los Angeles and the University of California, Berkeley, paused certain CPT work-authorization applications while reviewing their internal procedures.

DHS characterized the guidance as clarifying, rather than changing, existing regulatory requirements. For students and designated school officials, however, the practical effect of intensified enforcement can be functionally indistinguishable from a substantive policy change: institutions became more cautious in authorizing internships, and students experienced new uncertainty about opportunities they had already arranged. This illustrates a recurring theme in this review—that even when the underlying regulatory text does not change, intensified or unpredictable enforcement can alter institutional behavior and student perceptions in ways that mirror the effects of formal policy restriction.

RESULTS

Impact on international student recruitment and enrollment

The strongest evidence indicates that restrictive immigration policies can reduce international enrollment, and that the effects are not evenly distributed across the applicant pool. Chen et al. (2023) found that higher anticipated F-1 visa refusal rates reduced international students' engagement with the U.S. application process and ultimately reduced enrollment, with effects concentrated among higher-achieving students. This finding is significant because it challenges the assumption that immigration restrictions simply reduce the quantity of international students; they may also alter the quality composition of the applicant pool. If highly qualified students have attractive alternatives in Canada, the United Kingdom, Australia, Germany, or elsewhere, they may be better positioned to respond to U.S. policy uncertainty by choosing another country. This dynamic is consistent with survey-based evidence that prospective students' global perceptions of the United States—not only its formal visa rules—shape enrollment decisions, meaning that reputational and policy signals can move demand even before any individual visa application is filed (Amuedo-Dorantes et al., 2022). The most internationally mobile students, in other words, may also be the students most responsive to immigration-policy uncertainty.

Emerging evidence from the 2025–2026 academic year provides a significant warning. The Institute of International Education's Fall 2025 Snapshot, based on responses from more than 825 U.S. institutions representing a majority of the country's international student population, reported a 17% decline in new international student enrollment relative to fall 2024, alongside a roughly 1% decline in overall international enrollment, a 12% decline in graduate enrollment, and a 14% increase in OPT participation (Institute of International Education, 2025). Fifty-seven percent of responding institutions reported a decline in new international enrollment, and most of those institutions—96%—cited visa concerns as a contributing factor, with 68% citing travel restrictions specifically. NAFSA subsequently estimated that the associated enrollment decline represented more than $1.1 billion in lost economic activity and nearly 23,000 fewer U.S. jobs relative to the prior year (NAFSA, 2025b).

These findings should not be interpreted as evidence that immigration policy alone caused the entire decline; international enrollment responds to multiple factors, including exchange rates, tuition costs, demographic trends, geopolitical developments, cuts to federal research funding, institutional reputation, and competition from other destination countries. Nevertheless, the convergence of declining new enrollment, most institutions citing visa and travel concerns, and heightened immigration uncertainty provides a strong empirical warning that immigration policy has become a significant, and possibly decisive, component of U.S. destination competitiveness.

Impact on international scholars and researchers

The effects on scholars may be even more consequential because academic research depends heavily on international mobility. Feeney et al. (2023) surveyed U.S. and foreign-born scientists across three STEM fields and found substantial negative effects of visa and immigration policy on research collaboration, recruitment, and retention. More than one-third of surveyed scientists reported project delays related to visa

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issues, and approximately one-quarter reported having to cancel projects outright; large proportions of respondents perceived current immigration policy as negatively affecting U.S. talent attraction, diversity, global scientific competitiveness, and workforce development, and reported increased intentions to leave the United States as a result. International scholars therefore experience immigration policy not simply as an administrative matter, but as a factor shaping research continuity, conference participation, laboratory recruitment, postdoctoral employment, international collaboration, grant eligibility, career progression, family mobility, and long-term professional planning.

An additional structural challenge, sometimes described as an "ineligibility barrier," arises because international researchers can be excluded from certain federal and private research funding mechanisms whose eligibility criteria depend on citizenship or permanent-resident status. This means that even scholars who successfully enter the United States and secure academic positions may encounter institutional disadvantages later in their careers that are unrelated to their scholarly merit.

Major cross-cutting themes

Three cross-cutting themes emerged from the synthesis of this literature.

Theme 1: Immigration policy has become higher education policy. Visa policy determines who can enter U.S. campuses; immigration policy determines how students complete their programs; employment policy determines whether graduates can obtain professional experience; permanent immigration policy determines whether highly educated graduates remain in the United States; and research-mobility policy determines whether scholars can participate in global science. Immigration policy and higher education policy can no longer be treated as separate domains.

Theme 2: Predictability functions as a form of educational capital. The United States possesses extraordinary academic resources, but students evaluate destinations based on more than institutional rankings. A highly attractive academic destination can become less attractive when the pathway from admission to graduation to employment becomes uncertain. Because students and families invest substantial financial and emotional resources in international education, they place independent value on a predictable regulatory environment—one that is, in effect, purchased alongside tuition and living expenses.

Theme 3: Restrictive policy can produce selection effects that concentrate losses among the most desirable applicants. As introduced in the discussion of push-pull theory above, Chen et al.'s (2023) finding that academically stronger students respond more, not less, strongly to visa restrictiveness means that the consequence of restrictive policy is not merely fewer international students overall; it is potentially a lower-quality talent pool among those who remain in the applicant stream, concentrated among students with the strongest academic credentials, STEM preparation, entrepreneurial ambition, or advanced research interests.

DISCUSSION

Brain gain, brain drain, or brain redistribution?

There is compelling evidence that international education continues to produce brain gain for the United States. International students contribute tuition revenue, research labor, scientific expertise, innovation, entrepreneurship, cultural diversity, international networks, skilled labor, tax revenue, local economic activity, and global institutional reputation; as noted in the Introduction, this economic contribution alone exceeded $42 billion and supported more than 355,000 jobs in 2024–2025 (NAFSA, 2025a). The United States therefore continues to benefit substantially from international talent.

The more important conclusion of this review, however, is that current policy trends risk transforming durable brain gain into a more fragile and contestable advantage. When prospective students perceive that entering or remaining in the United States is becoming more difficult, they increasingly have credible alternatives, because other destination countries have developed increasingly sophisticated international recruitment strategies of their own. The global market for international students has changed: the United States no longer competes solely on the quality of its universities, but on quality combined with

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affordability, safety, employability, immigration predictability, and post-study opportunity. Migration Policy Institute analysis found that the U.S. share of global international student enrollment declined from approximately 20% in 2013–2014 to 16% in 2023–2024 (Balatova, 2025). This trend does not by itself establish that U.S. immigration restrictions caused the entire decline, but it demonstrates that U.S. dominance in international education should not be assumed to be permanent.

The traditional brain-drain framework assumes a relatively simple bilateral movement from a sending country to the United States. The contemporary environment is more accurately represented as a multipolar competition among the United States, Canada, the United Kingdom, Australia, Germany, and other advanced economies for the same globally mobile pool of talent. The central competition, in other words, is increasingly not between the United States and "staying home," but among multiple advanced economies competing for the same students and scholars. If restrictive or unpredictable policies cause a prospective student to choose Toronto instead of Boston, London instead of Chicago, or Melbourne instead of Los Angeles, the United States does not necessarily cause that individual to return home; it may simply lose the competition for talent. This emerging phenomenon is more precisely characterized as brain redistribution rather than classical brain drain.

The findings also suggest that U.S. higher education has historically operated within a self-reinforcing cycle in which international students generate tuition and research contributions that strengthen university capacity, research innovation, and employment opportunities, which in turn sustain global reputation and attract further international enrollment. Immigration restrictions risk interrupting this cycle: policy uncertainty can reduce applications and enrollment, which reduces institutional resources and weakens international networks, which in turn diminishes global attractiveness and compounds future enrollment decline. The concern, therefore, is not simply the immediate effect of any single regulation, but the possibility of a cumulative reputational effect, since international students communicate with prospective applicants through social networks, family ties, alumni associations, and education agents, so that one student's difficult visa experience can influence the decisions of many others.

Implications for higher education institutions

Several practical implications follow for colleges and universities, and they are best understood through the lens of institutional leadership rather than administrative compliance alone. Because immigration policy now cuts across enrollment management, academic affairs, research administration, career services, government relations, and general counsel, responding to it effectively requires what Prysor and Henley (2018) describe as boundary-spanning leadership—the capacity of institutional leaders to work across internal divisional boundaries and external boundaries with government agencies, employers, and peer institutions to formulate coordinated strategic responses. Applying this leadership lens yields four practical recommendations.

First, international student and scholar services should be repositioned as a strategic, cabinet-adjacent institutional function rather than a purely administrative compliance office, with a formal reporting line or standing advisory role connecting it to the provost's or president's cabinet, and with responsibilities spanning immigration advising, crisis communication, proactive policy interpretation, career advising, employer engagement, government relations, and institutional risk management. Second, institutional leaders should convene a standing, cross-divisional immigration-response team—drawing on international services, academic affairs, general counsel, communications, and career services—charged with building formal immigration-resilience plans that address visa delays, travel restrictions, the transition to fixed admission periods, changes to CPT and OPT, country-based restrictions, delayed arrivals, and research interruptions, so that individual students and scholars are not left to navigate rapidly shifting requirements without institutional support. Third, recruitment messaging, developed collaboratively by enrollment leadership and international services, should transparently address the entire student lifecycle from admission through visa issuance, entry, enrollment, employment, graduation, OPT, and career transition, rather than presenting international study as free of regulatory risk. Fourth, career services should be integrated more closely with immigration expertise, and institutional leaders should invest in cross-training

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so that career advisors can give guidance that explicitly accounts for a student's immigration status and its interaction with hiring timelines. Taken together, these recommendations reflect a broader argument of this review: sustaining international enrollment and research capacity in a volatile policy environment is now a leadership competency, not solely a compliance function.

Implications for federal policy

The evidence reviewed here supports several policy recommendations. Immigration policy should be predictable enough that students and their families can make multi-year educational decisions with confidence; frequent changes can discourage enrollment even when the underlying rules remain technically available to most applicants. A functional post-study employment pathway, including OPT and the STEM OPT extension, should be preserved as a matter of national competitiveness, because a U.S. degree that does not provide a credible opportunity to gain professional experience becomes less attractive relative to competing destinations. The transition from Duration of Status to the new fixed-admission-period framework should be implemented with transparent guidance, reasonable extension procedures, timely adjudication, protections against unintended gaps in status, and specific accommodation for doctoral research and dissertation timelines, so that the goal of enhanced program integrity does not create unnecessary barriers to legitimate academic progress. National security screening is a legitimate governmental responsibility, but broad or unpredictable restrictions can produce unintended consequences when they prevent legitimate students and researchers from participating in U.S. higher education; a more effective model combines targeted security screening, efficient processing, transparent standards, and institutional accountability. Finally, the United States currently lacks a fully integrated strategy connecting higher education, immigration, workforce development, science policy, and economic competitiveness; international students and scholars should be explicitly understood as part of the national talent pipeline rather than treated solely as a border-control concern.

Lessons for the future

The experience of the past several years yields several durable lessons for higher education leaders and policymakers, several of which extend the theoretical integration presented in Figure 1. Global talent is mobile: the United States cannot assume that students will continue to choose U.S. institutions simply because American universities are prestigious, and the reputational feedback loop shown in Figure 1 means that today's enrollment decisions shape tomorrow's applicant pool. Because visa policy directly affects higher education competitiveness, immigration policy functions, in practice, as recruitment and workforce policy, and it should be led and staffed accordingly. Consistent with the policy-uncertainty perspective introduced earlier, unpredictability can be more damaging than restriction itself, since students and institutions can plan around clear rules but struggle to respond to constantly changing ones—and, per Chen et al. (2023), the students most desirable to the United States are also often the most globally mobile and therefore the most responsive to that uncertainty. Finally, brain gain requires retention: attracting students without providing credible pathways to professional development and employment limits the economic and scientific return on the initial educational investment, underscoring that international scholars are part of the nation's research infrastructure rather than temporary visitors.

CONCLUSION

International students and scholars have historically constituted one of the United States' most significant sources of global human capital, and the country's universities, research institutions, employers, and communities have benefited substantially from international educational mobility. The evidence reviewed in this article demonstrates, however, that the U.S. advantage is not guaranteed. The United States continues to experience substantial brain gain, but contemporary immigration policy increasingly risks weakening that advantage. Visa restrictions, country-based entry limitations, immigration-status uncertainty, the transition away from Duration of Status, intensified scrutiny of practical training, and

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obstacles affecting international research mobility can discourage prospective students and scholars and encourage them to consider alternative destinations.

The most consequential finding of this review is that restrictive policies do not necessarily eliminate international mobility; as discussed above, they more often redirect it toward competing destination countries. The central policy lesson is that a country cannot simultaneously seek to lead the world in higher education, scientific innovation, and technological competitiveness while treating the international talent pipeline primarily as an immigration-control problem. A sustainable path forward requires what this review terms strategic openness: an approach that screens international students and scholars appropriately while making the legitimate educational and research pathway sufficiently predictable, accessible, and competitive to attract the world's most talented individuals, thereby preserving the historic benefits of U.S. brain gain while promoting brain circulation and durable international partnerships. If talented students and scholars conclude that the United States is too uncertain, difficult, or restrictive, they will not necessarily abandon international education altogether; they may simply choose another destination—and when that happens, the United States does not merely lose students, but loses talent, innovation, research capacity, economic activity, institutional diversity, international networks, and future global influence.

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Author contributions

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Data availability

No new datasets were generated or analyzed in this study. All sources reviewed are cited in the reference list.

AI disclosure

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