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Effect of Biden's administration on international students' choice of major and long-term career planning

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ABSTRACT

This paper analyzed the impact of the more restrictive temporary non-immigrant H-1B work visa policy implemented in the 2004 Visa Reform Act on international students' choice of major and long-term career planning, specifically focusing on how Biden's presidency (2021–2024) influenced these decisions after the restrictive policies had already been enforced. Using a Difference-In-Difference (DIF) regression approach, the study compared international students before and during Biden's administration, utilizing data from an international enrollment liberal arts college in the U.S. while controlling for gender, country of origin, high school Grade Point Average (GPA), Scholastic Aptitude Test (SAT)/ American College Test (ACT) scores, scholarship status, and student-athlete participation. The results indicated that students affected by Biden's presidency were less likely to choose a Science, Technology, Engineering, and Mathematics (STEM) major by approximately 35 percentage points, potentially due to expectations of looser H-1B visa policies reducing the perceived necessity of pursuing a STEM degree to secure a work visa. Additionally, the COVID-19 pandemic and the shift to remote learning diminished the appeal of studying abroad, particularly for STEM fields that required hands-on experience. The findings also revealed that females and scholarship recipients were more likely to choose STEM majors by 6.5 and 4.8 percentage points, respectively, while Europeans and student-athletes were less likely by 12.9 and 22.8 percentage points. Despite these shifts, the relaxation of visa policies did not compromise the academic quality of international students, as higher high school and SAT/ACT scores remained strong predictors of selecting a STEM occupation.

1.1 INTRODUCTION

Historically, international students have played a critical role in driving innovation, addressing labor shortages, and contributing to cultural diversity within the United States. They bring fresh perspectives and unique problem-solving approaches that drive innovation across various fields. Their diverse educational backgrounds and experiences contribute to groundbreaking research and development. As highly skilled workers, they are vital to the labor market, helping to fill critical skill gaps in sectors such as technology, healthcare, and engineering. By contributing their expertise, international students enhance the competitiveness of the U.S. economy. Additionally, they introduce diverse cultural perspectives, traditions, and languages, fostering a more inclusive and global environment (Miriam Feldblum et al, 2024). Their visa status significantly influences their career opportunities and economic contributions, shaping their academic and professional trajectories. The H-1B visa serves as a common pathway for international students transitioning from student status to professional employment. However, the annual cap on H-1B visas and strict employer requirements can limit these opportunities, making employers hesitant to sponsor H-1B visas and affecting the job prospects of international students.

On December 8, 2004, President George W. Bush signed the H-1B Visa Reform Act into law. This policy aimed to address concerns about H-1B visa misuse while considering the needs of employers for highly skilled foreign workers. The general annual cap was lowered from 195,000 to 65,000, with an additional 20,000 visas allocated for foreign students holding a master's degree or higher from U.S. institutions, creating a two-tier system (Stuart Anderson, 2024). The Reform Act not only reduced the number of available visas but also imposed stricter restrictions on employers. They are now required to demonstrate that hiring H-1B workers would not displace U.S. employees, actively recruit U.S. workers, and face penalties for violations, such as failing to pay prevailing wages. Consequently, the process became more selective, and employers became more reluctant to engage in the uncertain and rigid process.

Numerous studies have shown these changes have influenced international students' decisions regarding studying in the U.S., seeking permanent employment, or selecting their majors (Stirgus, 2019). However, when President Biden took office in Spring 2021, he implemented significant changes to the H-1B program to enhance its flexibility. The Department of Homeland Security (DHS) introduced a final rule to modernize the H-1B program by streamlining the approval process, making it more efficient for employers to hire skilled foreign workers (Homeland Security, 2024). Biden's new regulations provided U.S. companies with greater flexibility to retain talented workers and fill critical positions more effectively. To prevent abuse, the rule granted U.S. Citizenship and Immigration Services (USCIS) expanded authority to conduct workplace site visits, ensuring appropriate use of H-1B visas (Fisher Phillips, 2024). Additionally, the updated process offered non-immigrant student visa holders more flexibility to remain in the U.S. while their H-1B applications were being processed, preventing lapses in immigration status (AIP, 2025). This non-immigrant student visa is referred to as F-1, and it allows international students to temporarily live in the United States while pursuing full-time academic studies in an accredited U.S. institution. These changes could increase international students' chances of securing employment and remaining in the U.S.

after graduation. These may potentially be regarded as looser visa restrictions that could in turn influence the student's major and career choices.

This paper examined international enrollment trends since the stricter policies came into effect and during Biden's presidency, exploring whether changes in H-1B visa policies impacted international students' academic and career decisions. It aimed to answer the question of how H-1B visa restrictions before and during Biden's presidency had influenced international students' major selection and long-term career planning at U.S. universities.

With H-1B restrictions potentially affecting post-graduation employment opportunities, international students may select majors with broader employment options, both in the U.S. and abroad. Conversely, the perceived looser policies during Biden's administration may have caused the opposite effect. The study analyzed the selection of STEM vs. non-STEM majors for international students, filtering for gender, country of origin, SAT/ACT concorded scores, high school GPA, and scholarship and student-athlete status. Data from University of North Carolina Asheville (UNCA) from Spring 2016 to Spring 2025, acquired through the Registrar's Office, was used as a representative sample to conduct this regression.

It is essential to explain the options available to international students regarding visa status. There are two main types of student visas: F-1 and J-1. The former is for full-time academic study or language training at a U.S. institution and covers most degree programs. The latter is designed for individuals participating in exchange visitor programs that promote cultural exchange, commonly used for short-term studies such as internships, training programs, research, etc., allowing for up to 18 months of work authorization related to the field of study. F-1 visa students have the option to apply for Optional Practical Training (OPT), a work authorization that allows them to gain practical experience in their field after graduation. Non-STEM majors are eligible for a 12-month OPT period with no extension. However, STEM majors are eligible for the 12-month period plus an extension of up to two additional years (total of 36 months) (USCIS, 2024). This being the case, international students may be inclined to pursue a degree in an eligible STEM field. Businesses are typically more willing to sponsor an H-1B visa if the employee has previously worked for them, particularly if this employment has lasted for nearly three years (US Chamber of Commerce, 2025).

Narrowing down the sample population to the data obtained from UNCA for the years 2016-2025 as a representative cohort of international students in U.S. universities, provided sufficient verifiable data to test the research question and draw meaningful conclusions.

1.2 LITERATURE REVIEW

The current political and economic debate necessitates a better understanding of how the H1B visa policy affects immigration decisions and/or choice of major. Since 2004, there has been a lot of research done on the ways this policy has affected international students and U.S. universities. Kato and Sparber (2004) explored how H-1B visa restrictions impacted the academic quality of international students applying to U.S. undergraduate programs. They found that after the H-1B visa cap was reduced, high-quality students from countries without alternative visa pathways showed a noticeable decline in sending SAT scores to U.S. institutions. This suggested that visa restrictions discouraged highly qualified students from pursuing U.S. education, potentially impacting the country's access to top global talent. Similarly, Amuedo-Dorantes and Furtado (2016) examined how the H-1B visa cap affected international students' career choices in the U.S. They found that many international graduates pursued academic positions instead of private-sector jobs due to the cap, as universities and research institutions were exempt. This indicated that visa restrictions influenced workforce composition and career trajectories of high-skilled foreign-born graduates.

In terms of career choices, Stirgus (2019) reported a 20,000-student decline in international enrollment across U.S. colleges during the Trump administration, linked to stricter visa policies and heightened global competition. However, some states, like Georgia, saw an increase in international enrollment due to targeted outreach efforts. Building on this, Peri, Shih, and Sparber (2015) investigated factors influencing international STEM graduate students' decisions to stay in or leave the U.S. after graduation. They found that career goals, professional networks, and quality of mentorship were significant predictors. Restrictive U.S. immigration policies and competitive incentives from home countries often encouraged students to return.

Analyzing enrollment trends, Blair and Deming (2020) assessed how U.S. visa policies affected the mobility of international students during the COVID-19 pandemic. They found that challenges in transportation, customs restrictions, and medical requirements made it harder for international students to access working permits and sponsorships. This highlighted the impact of extraordinary events on enrollment trends and career options. In contrast, Nguyen and Kebede (2017) examined the challenges immigrant students faced under the Trump administration, including fear of deportation, reduced access to resources, and heightened discrimination. They emphasized the need for robust data collection to support policies promoting equity and inclusion for immigrant students.

Political and economic factors were addressed by Bartram on his paper published in 2018. He investigated the effects of Trump-era policies and Brexit on international students' experiences and perceptions. He found that hostile political rhetoric diminished the appeal of the U.S. and U.K. as study destinations. However, institutions could maintain international enrollments by creating welcoming environments and emphasizing the value of global education. Similarly, Reschke (2017) discussed Indiana University's unexpected increase in international undergraduate applications despite a national decline. IU attributed this to proactive recruitment efforts, global partnerships, and a reputation for supporting international

students. This case demonstrated how institutions could counter broader negative trends by fostering inclusivity.

While numerous studies have explored the impact of H-1B visa restrictions, career choices, enrollment trends, and political and economic factors, there was a gap in research comparing students' choices before and during Biden's presidency, considering variables such as gender, country of origin, high school grades, and scholarship status. This study aimed to fill this gap by analyzing the choice of STEM vs. non-STEM majors for international students, controlling for these variables, and comparing results before and during Biden's administration. All these papers served as a baseline for conducting my research project.

1.3 EMPIRICAL STRATEGY

In order to examine the relationship between a stricter visa policy with international enrollment and choice of STEM vs NON-STEM major before and during Biden's administration taking into account gender, country of origin (to control for cultural and economic factors such as Asian students being historically more likely to choose a field in STEM because of their cultural background (Chungseo Kang et al., 2021)), SAT/ACT and/or high school GPA scores, and scholarship recipient and/or student-athlete, the Difference-In-Difference model was used. It compared the quality and choice of major of the international students before and after the Biden administration. President Biden began with his inauguration on January 20th of 2021, and ended on January 20th of 2025 (CNN,2021). That being the case, a dummy variable for the group affected by the Biden administration was created. The variable was named "after", and it included all the data from Spring of 2021 to Spring of 2025. Spring of 2021 was included in the data set because the President was elected in November of 2020, suggesting that the students starting in January of 2021 were aware of his future presidency before they started. Spring of 2025 was also included in the data set despite the change of presidency, because visa policy changes come with a time lag and can only be implemented at the start of the new fiscal year, in October (U.S. Department of State, 2025). They would therefore take decisions on their career path considering Biden's policies on immigration and work visas.

To identify the effects of the H-1B policy and Biden's presidency on the international student's choice of major and career path, the simple regression model in Equation (1) was estimated:

(1) $$P(STEM)_{i,t} = \beta_0 + \beta_1(Treated)_i + \beta_2(After)_t + \beta_3(Treated * After)_{i,t} + X\Gamma_{i,t} + \varepsilon_{i,t}$$

Where the dependent variable represented the choice of STEM or NON-STEM major. STEM= 1 if the student chose a STEM major, 0 otherwise. The sources of variation indicated in the subscript represented individual (i), and year (t). $Treated_i$, representing the treated group, measured the level of H-1B visa restriction on each individual. In other words, the exposure to the restrictive H-1B visa policy. It equaled 0 for all individuals graduating before 2004. For those graduating starting in 2004, it equaled 1; except for: (1) Canadians, Chileans, Mexicans, and Singaporeans, for whom it continued to equal 0, and (2) Australians, for whom the alternative visas became available in 2005; therefore, the variable equaled 1 for those graduating in 2004, but turned back to 0 for those graduating starting in 2005. The main coefficient of interest, β_1, measured how the binding H-1B visa cap had impacted the likelihood of obtaining a job in the academic sector among H-1B dependent foreign students, relative to students with substitute visas available. The Difference-In-Difference term (DIF)=Treated*after, represented the group affected by the stricter visa policies once Biden had become the president. The error term ϵ included every other factor not mentioned that may influence the choice of major. And finally, $X_{i,t}$ represented the set of variables controlled for:

Table 1. — Controlled variable description and hypothesized sign list

Variable	Description	Hypothesized Sign
Gender	It equaled 1 for female and 0 otherwise.	It was hypothesized that after the policy got tighter, the increase of women in STEM was greater than that of men. Historically, since the great majority of people in STEM fields were men (NCSES, 2024), women had a lot to gain and higher chances of getting a job in that field, due to the lack of demand. For women, choosing a STEM degree would generally result in higher chances of getting an H1B sponsorship than if they were in a non-STEM major. The coefficient was therefore expected to be positive.
Country of Origin	It equaled 1 for students from Europe and 0 otherwise.	The quality of life in Europe is very high compared to other countries like India, China, etc. (OECD Better Life Index, 2025). It was expected that European students would be keener to stay at home if the accessibility to US working visas got tighter. The coefficient was therefore expected to be negative.
SAT/ACT Concorded Scores	Quality of the international students	There was no anticipated change before and during Biden's presidency. Kato and Sparber's (2004) paper discussed that higher grades were associated with STEM degrees. The coefficient was therefore expected to be positive.
High School GPA	Quality of the international students	No anticipated change before and during Biden's presidency. Kato and Sparber's (2004) paper discussed that higher grades were associated with STEM degrees. The coefficient was therefore expected to be positive.
Scholarship Recipient	It equaled 1 for scholarship recipients and 0 otherwise.	It was expected for scholarship recipients to be more likely to choose a STEM major since U.S. universities offered more scholarships and grants for STEM degrees, compared to humanities or social sciences degrees (NCSES, 2024). The coefficient was therefore expected to be positive.

Student-Athlete Status	It equaled 1 for student-athletes and 0 otherwise.	With the amount of hours and energy spent on their sport, it was expected that student-athletes would choose majors with lower workloads typically involving non-STEM degrees. The coefficient was therefore expected to be negative.

A second model of research was also conducted where the interaction term DIF2=DIF*European, to examine if the European students reacted differently to the stricter visa policy before and during Biden's presidency, was implemented. The regression model in Equation (2) was estimated:

(2) $$P(STEM)_{i,t} = \beta_0 + \beta_1(Treated)_i + \beta_2(After)_t + \beta_3(Treated * After)_{i,t} + \beta_4(Treated * European)_{i,t} + \beta_5 European_i + \varepsilon_{i,t}$$

1.4 RESULTS

The regression equations were run on Stata and exported as Tables 2-8 below:

Table 2. — Relationship between choice of major of international students non-exempted from H1B visas and Biden's administration

STEM Major	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treated	.097	.049	1.97	.049	0	.193	**
After	.364	.07	5.23	0	.227	.5	***
DIF=Treated* After	-.348	.075	-4.63	0	-.496	-.201	***
Constant	0	.044	0.00	1	-.087	.087	
Mean dependent var		0.111	SD dependent var			0.315	
R-squared		0.051	Number of obs			539	
F-test		9.667	Prob > F			0.000	
Akaike crit. (AIC)		262.247	Bayesian crit. (BIC)			279.406	

*** p<.01, ** p<.05, * p<.1*

The regression results showed that there was a negative relationship between international students choosing a STEM major as their field of study and H1B visa restriction policies during Biden's administration. Results showed that Biden's presidency and H1B visa policies reduced the probability of an international student choosing a STEM degree by 34.8 percentage points relative to the control group (students affected by Trump's administration). As shown by the t-value (-4.63), the tested DIF was highly significant.

The main explanations for this phenomenon would included: During 2020-2022 many international students faced travel restrictions, visa delays, and difficulties obtaining U.S. student visas due to the COVID-19 pandemic. Remote learning made studying abroad less attractive, especially for STEM degrees that relied heavily on hands-on experience (Luis C. Villarroel HERMAN legal group, 2025). This could have led to more students pursuing education in their home countries or other destinations. Moreover, if students anticipated looser H-1B visa policies under Biden, they might have perceived that a STEM degree was no longer the only pathway to securing a work visa. On top of that, from 2022-2023 the U.S. tech industry experienced mass layoffs (Meta, Google, Amazon, etc.), which might have deterred students from STEM careers (Business Insider, 2023). If students feared limited job prospects, they may have switched to fields with alternative career paths. Lastly, tuition and living expenses in the U.S. substantially increased during Biden's presidency, making studying abroad less affordable for international students pursuing STEM degrees since they average to be 27 percent more expensive than NON-STEM degrees (Dominique J. Baker, 2024). This was due to laboratory costs, technology investments, and differential tuition policies. Many universities also cut funding for research and scholarships, potentially affecting STEM graduate enrollments.

Table 3.— Relationship between gender and choice of major of international students under Biden's administration

STEM Major	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treated	.106	.049	2.17	.031	.01	.202	**
After	.362	.069	5.23	0	.226	.498	***
DIF=Treated* After	-.353	.075	-4.71	0	-.5	-.206	***
Female	.065	.027	2.44	.015	.013	.118	**
Constant	-.042	.047	-0.89	.375	-.135	.051	

Mean dependent var	0.111	SD dependent var	0.315
R-squared	0.062	Number of obs	539
F-test	8.805	Prob > F	0.000
Akaike crit. (AIC)	258.273	Bayesian crit. (BIC)	279.721

*** p<.01, ** p<.05, * p<.1*

This regression showed that gender was indeed significant (t=2.44). It showed that female international students were more likely than men to choose a STEM degree by 6.5 percentage points, under Biden's administration. DIF still showed a negative coefficient, which strengthened the robustness of the regression.

The economic reasons behind Females being more likely to choose a STEM degree included: In the last 5 years, there has been an increasing push for gender diversity in STEM. This resulted in many companies, universities, and government programs offering scholarships, mentorship programs, and funding specifically for women in STEM (STEM Women, 2023). Special hiring programs for women in tech, engineering, and healthcare have also been added, and therefore corporate sponsorship for work visas has increased. This financial support could have reduced the cost burden, making STEM degrees and jobs not only more accessible for female international students, but also more attractive. Moreover, as of August 29th of 2024 (U.S. Bureau of Labor Statistics, 2024), females in NON-STEM jobs make an average of 20-30 percent less than men. While in STEM jobs, females make an average of 10-15 percent less than men. This could have made STEM degrees more attractive to females since they would have had higher probabilities of getting paid significantly higher salaries.

Table 4.— Relationship between choice of major of international students and country of origin during Biden's presidency

STEM Major	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treated	.178	.051	3.48	.001	.077	.278	***
After	.363	.068	5.32	0	.229	.497	***
DIF=Treated* After	-.332	.074	-4.49	0	-.477	-.186	***
Female	.047	.027	1.76	.078	-.005	.099	*
European	-.129	.03	-4.23	0	-.189	-.069	***
Constant	-.03	.047	-0.65	.516	-.122	.062	

Mean dependent var	0.111	SD dependent var	0.315
R-squared	0.092	Number of obs	539
F-test	10.845	Prob > F	0.000
Akaike crit. (AIC)	242.478	Bayesian crit. (BIC)	268.216

*** p<.01, ** p<.05, * p<.1*

The regression still showed a significant and negative DIF, which further strengthened the robustness of the regression. The coefficient for the European vs non-European variable was -0.129, meaning that students from outside of Europe were 12.9 percentage points more likely to choose a STEM major than European students. And it was highly significant (t=-4.23).

The potential explanations for these results were: Because the labor and life conditions (better work-life balance, maternity and paternity leave, safety standards, and paid leave and vacation days) are notably better in European countries than in other places like India or China (OECD Better Life Index, 2024), European students have less to lose when they have to stay in their home countries. Therefore, spending money, time, and energy on a STEM degree to then pursue an H1B Visa would be less enticing. Generally, regardless of visa policies, STEM graduates have a higher chance of securing H-1B visas (American Immigration Council, 2025). This is crucial for staying and working in the U.S. So, if a student believed their economic, social, and physical well-being would significantly improve in the US versus in their home country, they would try to increase their chances in any way possible. Moreover, non-European countries, particularly Asia and Africa, often have a strong cultural emphasis on STEM fields as a measure of academic success. Parents and families in these regions tend to prioritize STEM fields over arts, humanities, or social sciences (World Journal of Advanced Research and Reviews, 2023). Plus, non-European countries offer higher salaries and better job security for STEM careers compared to humanities or social sciences (The Future of Jobs Report WEF, 2024). Therefore, the results showing non-European students being more likely to choose a STEM major met the pre-regression expectations.

Table 5.— Relationship between choice of major of international students and SAT/ACT Concorded grades during Biden's presidency

STEM Major	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treated	.349	.072	4.87	0	.208	.491	***
After	.679	.142	4.78	0	.398	.959	***
DIF=Treated* After	-.706	.148	-4.76	0	-.998	-.414	***
Female	.009	.046	0.19	.846	-.081	.099	
European	-.33	.05	-6.55	0	-.429	-.23	***
SATACTConcorded	.001	0	6.01	0	.001	.001	***
Constant	-1.085	.19	-5.71	0	-1.459	-.71	***

Mean dependent var	0.171	SD dependent var	0.377
R-squared	0.429	Number of obs	199
F-test	24.032	Prob > F	0.000
Akaike crit. (AIC)	78.353	Bayesian crit. (BIC)	101.406

*** p<.01, ** p<.05, * p<.1*

This regression checked for the quality of international students. As shown in Table 5, students with higher standardized test scores were more likely to choose STEM fields. For every 1-point increase in the SAT/ACT score, the likelihood of choosing a STEM major increased by 0.001. The test-score variable was highly significant (t=6.01). The DIF variable was still negative, strengthening the robustness of the regression. Therefore, while the effect was small, Biden's H1B visa policy didn't change the quality of international students, but it did change their choice of major.

The economic explanation for this behavior was the following: International students often face higher admission standards at U.S. universities. Many schools require higher test scores from international applicants due to differences in education systems and grading scales (Dr. Eliza Fox, 2024). STEM programs are highly competitive, leading to a self-selection effect, where only students with top SAT/ACT scores apply and gain admission. Additionally, STEM scholarships often have higher academic requirements (Art Sawyer, 2024), pushing applicants to achieve top SAT/ACT scores. It therefore made sense that the quality of international students did not change despite the loosened visa policies.

Table 6.— Relationship between choice of major of international students and their High School GPA during Biden's presidency

STEM Major	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treated	.187	.098	1.91	.063	-.01	.384	*
After	.737	.111	6.66	0	.515	.959	***
DIF=Treated* After	-.868	.145	-5.97	0	-1.16	-.575	***
Female	.228	.069	3.32	.002	.09	.366	***
European	.298	.107	2.79	.007	.083	.512	***
SATACTConcorded	0	0	-0.60	.553	-.001	.001	
HighSchoolGPA	.177	.067	2.62	.012	.041	.313	**
Constant	-.636	.301	-2.11	.04	-1.242	-.031	**
Mean dependent var		0.123	SD dependent var			0.331	
R-squared		0.634	Number of obs			57	
F-test		12.149	Prob > F			0.000	
Akaike crit. (AIC)		-6.609	Bayesian crit. (BIC)			9.736	

**** p<.01, ** p<.05, * p<.1*

These regression results showed multicollinearity with the ones obtained in Table 5. All international students must have at least a High School GPA and/or SAT/ACT scores to be able to apply to U.S. universities. Once again, the quality of international students was not affected by Biden's visa policies, and higher scores were correlated to higher chances of choosing a STEM degree.

Table 7.— Relationship between choice of major of international students and whether or not they are scholarship recipients and/or student athletes, during Biden's presidency

STEM Major	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treated	.276	.12	2.30	.026	.035	.517	**
After	.788	.128	6.17	0	.531	1.045	***
DIF=Treated*After	-.959	.157	-6.11	0	-1.275	-.644	***
Female	.108	.102	1.05	.298	-.098	.314	
European	.29	.113	2.57	.013	.063	.516	**
SATACTConcorded	0	0	-0.51	.611	-.001	.001	
HighSchoolGPA	.162	.086	1.87	.068	-.012	.336	*
Scholarship Recipient	.048	.102	0.47	.638	-.157	.253	
StudentAthlete	-.228	.14	-1.63	.11	-.509	.053	
Constant	-.526	.313	-1.68	.099	-1.155	.103	*

Mean dependent var	0.123	SD dependent var	0.331
R-squared	0.654	Number of obs	57
F-test	9.873	Prob > F	0.000
Akaike crit. (AIC)	-5.750	Bayesian crit. (BIC)	14.681

*** p<.01, ** p<.05, * p<.1*

As shown in Table 7, scholarship recipients were more likely to choose a STEM degree by 4.8 percentage points, while non-Student-Athletes were 22.8 percentage points more likely to choose a STEM degree. While according to the t-values these two variables were not significant, they were still worth noting since the DIF was still negative, highly significant, and therefore robust. Many U.S. universities, governments, and private organizations offer more scholarships and grants for STEM students compared to humanities or social sciences (Dr. Imed Bouchrika, 2025). For instance, the Fulbright Foreign Student Program. Moreover, a significant number of international students come from low- or middle-income countries, making financial stability a top priority. STEM careers generally offer higher salaries compared to non-STEM fields and hence, better job security and demand (NCSES, 2019), especially in tech, engineering, and healthcare. That is why Scholarship recipients tend to choose careers in STEM.

On the other hand, student-athletes are required to dedicate a significant amount of time to their sports. Very often, coaches ask their players to choose a lower workload degree to be able to spend as much time training and competing for the school's team. Since STEM degrees require not just time but also lecture presence, student-athletes gravitate towards non-STEM degrees.

Table 8.— Interaction between treated group and country of origin

STEM Major	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treated	.208	.054	3.87	0	.102	.314	***
After	.372	.069	5.43	0	.238	.507	***
DIF=Treated*After	-.368	.083	-4.41	0	-.532	-.204	***
DIF2=DIF*European	.031	.06	0.53	.599	-.086	.149	
European	-.151	.042	-3.63	0	-.232	-.069	***
Constant	-.054	.046	-1.17	.242	-.144	.036	

Mean dependent var	0.111	SD dependent var	0.315
R-squared	0.110	Number of obs	539
F-test	9.355	Prob > F	0.000
Akaike crit. (AIC)	236.021	Bayesian crit. (BIC)	270.339

*** p<.01, ** p<.05, * p<.1*

Table 8 showcased the second model of research (DIF2), where the interaction between the initial Difference-In-Difference coefficient (DIF=treated*after) and the European variable was added to the regression. As shown by the results, while DIF remained highly significant, DIF2 did not. This suggested that while European students were less likely to choose a STEM occupation overall, the treated groups from before and during Biden's presidency did not behave differently.

This behavior could be explained by the following: European education systems often emphasize a broader, more liberal arts-focused curriculum compared to the more specialized STEM-focused education in some other regions like India or China (Kara A. Godwin et al., 2016). This could potentially influence European students' career choices. Moreover, the job market in Europe for STEM graduates is more favorable than in other regions (Eurosciencejobs, 2024), motivating European students to return home after their studies rather than pursuing STEM careers in the US. And lastly, navigating the US visa and immigration system is a challenging process. Non-European students could be more motivated to stay in the US due to fewer opportunities in their home countries, whereas European students would find it more enticing to return home or move within the EU.

These facts were true before and once Biden became the president of the US. That was why the controlled groups did not behave differently from one another.

1.5 DISCUSSION

As shown in tables 2-8, the regression analysis proved to be strongly significant for most of the variables evaluated. However, the number of observations taken to carry out the regression was remarkably low. The reason for this was that the data was obtained from a smaller liberal arts school that only had students' records since 2016. Moreover, in the data sheet provided, a significant number of students did not have a grade for either SAT/ACT concorded or high school GPA scores. This was because some international high schools provided their version of the American high school GPA scores that granted admission to the university, but due to privacy reasons, I was not given permission to access it. That being the case, for the regression equations that controlled for SAT/ACT concorded or high school GPA, only 57 observations were considered.

Additionally, the school from which the data was obtained (liberal arts school) offered mostly NON-STEM degrees. They did offer Engineering, Math, and Biology degrees, but the departments were significantly smaller. This could have skewed the data into higher NON-STEM student ratios, potentially affecting the results obtained from the regression analysis.

Looking into the direction of future research, the research robustness would considerably improve if additional data were to be obtained from larger schools and from schools that specialized in STEM degrees. NC State, for instance, is a powerhouse for Engineering, Technology, Science, and Math (NC State News, 2013). It would be insightful to compare the data from this school to that from UNCA (known for degrees in Business, Psychology, Economics, English, and Arts), calculate averages, and draw conclusions. Additional variables could be added to the regression such as family income since STEM degrees tend to be more expensive (The Daily Free Press, 2016); and native language, for example people from English speaking countries may be more motivated to move or study in the US since they share the same native language, while the opposite may happen for students that have to learn the language from scratch.

Overall, this paper provided a simple overview of the effects of the stricter H1B visa policy before and during Biden's presidency on international students. It offered, however, the opportunity to strengthen the robustness and credibility of the results by going deeper into the research. This paper should be taken as an ongoing work-in-progress study.

1.6 CONCLUSION

This study investigated the impact of H-1B visa restrictions, particularly during the presidency of Joe Biden, on the choice of major and long-term career planning of international students at U.S. universities. The enrollment data utilized was obtained from a liberal arts school (UNCA) and included all students enrolled from Spring 2016 to Fall 2025. The regression analysis, employing the Difference-In-Difference method, revealed that Biden's administration policies led to a significant decline in the likelihood of international students choosing STEM majors. The perception of looser H-1B visa restrictions under Biden appeared to reduce the perceived necessity of pursuing a STEM degree to secure a work visa, prompting students to explore a broader range of academic disciplines.

Several important trends arose from the findings. Female international students showed a higher likelihood of choosing STEM majors compared to their male counterparts, possibly due to increased support and initiatives promoting gender diversity in STEM fields. Non-European international students were more inclined to opt for STEM majors than their European peers, reflecting differences in cultural emphasis, job market conditions, and visa policy impacts. This behavior persisted both before and during Biden’s administration. The quality of international students, measured by SAT/ACT concorded scores and/or high school GPA, remained consistent, indicating that the looser visa policies did not affect the academic quality of the international students choosing to study in the U.S. Additionally, scholarship recipients were more inclined towards STEM degrees, likely due to the availability of more funding and scholarships in these fields, while student-athletes gravitated towards non-STEM majors, likely due to the demanding nature of their sports commitments.

Overall, this research highlighted the complex correlation between immigration policies, cultural factors, and individual preferences in shaping the educational and career path choices of international students. The results suggested that while policy changes could influence major selection, they would not diminish the quality of talent attracted to U.S. universities. Future policy recommendations should consider these effects to motivate a supportive environment for international students, ensuring that the U.S. remains a competitive and attractive destination for global talent.

However, while the model proved to be robust and the regressions were mostly strongly significant, a more detailed and extensive data set would be needed to draw stronger conclusions on this matter. The lack of data availability reduced the size of the data set significantly, which could have led to skewed data and unreliable results.

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