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# Cultural Signatures in International Students' Fields of Study

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## ABSTRACT

*International student enrollment is typically modeled using economic, policy, and institutional factors. However, less attention is given to students' home country culture. This paper finds correlations between the field of study of international students and their home country culture dimensions using a nonlinear model built from Hofstede's Values Survey Module and the Institute of International Education's Open Doors dataset. We find that power distance, long-term orientation, individualism, and uncertainty avoidance correlate with field of study preferences in contrasting directions. This supplements conventional accounts of student mobility by showing how cultural values and norms interact with structural opportunity, thereby extending theoretical debates on internationalization and student agency. The study further suggests practical implications for higher education institutions seeking to diversify recruitment beyond dominant sending countries.*

**Keywords:** culture, enrollment, field of study, Hofstede, recruitment, student mobility, public diplomacy

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## INTRODUCTION

As higher education institutions (HEIs) seek to internationalize, grow enrollment, enhance student diversity, and respond to global demand for international student mobility, understanding the drivers of mobility has become increasingly important (Shapiro et al., 2023). International student mobility is

commonly explained through frameworks emphasizing structural determinants in which home country constraints (e.g., limited domestic capacity, labor-market conditions) "push" students outward, while host-country opportunities (e.g., perceived quality, prestige, opportunities after graduation) "pull" students toward particular destinations and institutions (Mazzarol & Soutar, 2002). Internationalization scholarship argues that institutional strategies and national policy shape access, recognition, and post-study opportunity (Altbach & Knight, 2007). However, these frameworks under-specify why similarly positioned students respond differently to the same opportunity structures.

Recent scholarship points to the importance of culture, values, and identity in shaping mobility decisions. Our study extends this line of inquiry by examining how cultural orientations correlate with the specific academic disciplines international students pursue. We propose culture not as a competing explanation to structural determinants, but as a conditioning layer that shapes how students interpret, weigh, and act upon structural signals.

By applying the Hofstede (2011) model of national culture to discipline-specific enrollment data, this study asks whether cultural attributes correlate with international student enrollment in distinct academic fields in the United States. To explore this question, we created a quadratic ordinary least squares (OLS) regression model using Hofstede's Values Survey Module of culture dimension scores (Hofstede, 2016) and the Institute of International Education (IIE) Open Doors data which tracks international student enrollment (IIE, 2024). Our findings support the premise that cultural variables, particularly power distance, long-term orientation, uncertainty avoidance, and individualism, correlate significantly, non-linearly, and in contrasting directions with academic preferences.

This study makes three contributions to the study of international student mobility. First, it extends current accounts of mobility by treating home country culture as a conditioning layer through which students interpret educational opportunities. Second, it shifts the unit of inquiry from whether and where international students study to how international students distribute across academic fields, an outcome currently underexamined. Third, it demonstrates how culture-based estimates of field of study preference can reveal potential source countries that differ from those identified by conventional enrollment rankings, providing a complementary basis for recruitment diversification and program planning.

## LITERATURE REVIEW: INTERNATIONAL EDUCATION AND CULTURE MODELS

Mulvey (2021) and Khan et al. (2020) show how international student mobility is shaped by social structures, economic opportunity, and cultural values. Building on the insights of Tadaki and Tremewan (2013) and Heng (2018), these studies reinforce the theory that students' academic choices are not merely outcomes of individual preference or institutional reputation but are embedded in a wider socio-cultural and institutional context. Mulvey emphasizes the structural inequalities in access to international education, particularly for students from the Global South, while Khan and colleagues focus on how personal development and identity formation are closely tied to students' intercultural experiences abroad. Marginson (2014) contributes to this line of thinking by arguing that international students are not passive recipients of institutional or structural forces, but active agents engaged in ongoing processes of self-formation, shaping their identities, aspirations, and academic trajectories in relation to both their home culture and their host environment. These findings call for a more nuanced understanding of international education and disciplinary preferences as reflections of personal and cultural identities and norms and as contributors to broader sociocultural processes.

Systematic reviews and meta-analyses further demonstrate relationships between culture and education. Gutema et al. (2024) focus on determinants of mobility, including the role of HEIs in the recruitment of international students and the role of culture in a student's selection of a host country. Ouyang et al. (2025) studied the impact of culture dimensions on education management and on teaching and learning behaviors. Akosah-Twumasi et al. (2018) correlate culture dimensions with intrinsic, extrinsic, and interpersonal factors that influence career choices. Alqarni (2022) studied the relationship between cultures of nations and learning styles including classroom, online, web-based, self-directed, blended and

mobile learning. However, these studies do not differentiate between academic disciplines or examine how cultural factors correlate with program-level choices by international students in U.S. institutions**.**

Studies touching on the intersection of culture and student mobility collectively suggest that students' cultural orientations, values, norms, and expectations are significant predictors not only of destination country but also of choice of academic field, the latter being a relationship that remains underexplored in the literature. Bicak and Taylor (2020) find that international student enrollment correlates more strongly with research intensity, which tends to be discipline specific, than with other factors including tuition support. Ruiz (2014) finds that a greater proportion of foreign students in the United States study STEM and business fields than do U.S. students, and implies that HEIs can tailor their offerings by discipline to foreign students. Figlio et al. (2019) find a relationship between the long-term orientation of pre-college immigrant students in the U.S. and their academic performance in certain subjects. Muzumdar et al. (2023) show that optional practical training influences international STEM student mobility.

Hofstede (2011) defines culture as "*the collective programming of the mind"* that distinguishes the members of one nation from those of another. He argues that culture encompasses the shared values, beliefs, norms, and behaviors learned and perpetuated within a particular national group. National culture shapes individuals' identities and interactions with the external world, reflecting the societal characteristics and patterns passed down through generations. Hofstede recognizes other types of cultures, such as those learned as professionals in organizations. Societal cultures, however, tend to be more persistent as they often reside in (unconscious) values that determine our preferences towards a certain state of affairs.

Hofstede's model of culture provides a structured approach to understanding such preferences (Hofstede, 2011). Its six dimensions have been used extensively in studies of organizational behavior, cross-cultural psychology, economics, and education (Beugelsdijk et al., 2017):

1. **Power Distance Index (PDI)**: The extent to which less powerful members of organizations and institutions accept and expect that power is distributed unequally.
2. **Individualism vs. Collectivism (IDV)**: The degree to which people in a society are integrated into groups, with individualism favoring personal autonomy and collectivism emphasizing group cohesion. A high value equates with individualism.
3. **Masculinity vs. Femininity (MAS)**: The preference for achievement, competition, and material success (masculinity) versus cooperation, caring, and quality of life (femininity). A high value equates with masculinity.
4. **Uncertainty Avoidance Index (UAI)**: The extent to which members of a culture feel threatened by ambiguity and avoid uncertainty through rules, structure, and planning.
5. **Long-Term Orientation vs. Short-Term Normative Orientation (LTO)**: The degree to which a culture emphasizes pragmatic future-oriented values like perseverance and thrift versus past-oriented values such as respect for tradition and fulfilling social obligations. A high value equates with long-term orientation.
6. **Indulgence vs. Restraint (IVR)**: The extent to which a society allows gratification of basic and natural human drives related to enjoying life and having fun. A high value equates with indulgence.

Hofstede himself explains how his dimensions offer predictive insights to international education (Hofstede, 1986). For example, the relationship between students and teachers is hierarchical in high power distance countries. In collectivist countries, learning is a one-time process to be conducted at a young age and not later in life. Learners compete in highly masculine societies, whereas the craft of teaching is more important in feminine cultures. In high uncertainty avoidance countries, students are not supposed to openly disagree with teachers. In countries exhibiting long-term orientation, a student's academic success or failure is attributed to their effort, whereas in countries exhibiting short-term orientation it is accidental and not their fault.

Recent studies provide evidence that social and cultural influences extend to international students' disciplinary choices. Jahani and Soto (2024) find that international students' selection of STEM majors is associated with social and systemic influences, including financial considerations, government

opportunities, and gender-related cultural norms. Similarly, Xu (2025) shows how family, societal, and cultural factors influence the educational and career experiences of Chinese and Indian international STEM doctoral students in the United States. Treating culture as an attribute of internationalization in addition to an attribute of the home countries, Tadaki and Tremewan (2013) demonstrate how culture shapes engagement patterns and disciplinary focus, while Heng (2018) highlights the influence of societal and institutional expectations on mobility and academic choices. Rienties and Tempelaar (2013) used Hofstede's culture dimensions to predict the academic and social adjustment of international students, which in turn predict academic performance. However, this research does not explore discipline-specific enrollment patterns nor use culture to predict field of study enrollment, leaving an important research gap.

These patterns suggest a strategic rebalancing of recruitment efforts. Whereas traditional sending countries such as China and India dominate U.S. international student populations, a correlation between cultural traits and academic fields could reveal strategic opportunities for HEIs to grow international enrollment by helping identify under-tapped countries whose cultural attributes align with specific academic strengths. Liu (2021) advocates for expansion grounded in an understanding of what draws students from countries to particular programs in what he describes as a buyer's market, while Nicholls (2018) finds nationality-based factors influencing international students' choice of study destination, including educational quality, institutional and program reputation, safety, and affordability. For example, students from a culture with high long-term orientation may find programs in sustainability or public health appealing, while students from a culture with high masculinity may value competitive disciplines such as finance or STEM. Framing programs to appeal to cultural predispositions, such as emphasizing innovation and entrepreneurship in individualistic societies or group achievement in collectivist ones, can further enhance student engagement. Universities that account for the cultural profiles of target markets can align programs and outreach strategies with student expectations and values, and increase the effectiveness of international student recruitment.

The role of culture also contributes to the ongoing conversation about international student success (Shapiro et al., 2023; Whalen, 2016). Cultural fit, in terms of academic discipline and institutional factors, can improve academic outcomes, student satisfaction, and engagement. Wu et al. (2015) document the range of academic, social, and cultural challenges international students face upon arrival, noting that mismatches between students' expectations and their actual institutional experience are among the most persistent sources of difficulty. Additional studies highlight that aligning curricular design, advising, and support services with cultural expectations improves student satisfaction, retention, and learning outcomes (Gutema et al., 2024; Heng, 2018). Wit et al. (2017) argue that understanding culture dimensions can help institutions foster more inclusive learning environments that appeal to diverse international populations.

Some researchers have challenged the application of the Hofstede culture model in the field of education (Dennehy, 2015; Signorini et al., 2009; Whalen, 2016). The most frequently raised concern is that by reducing a nation to one set of culture values, the model hides potentially significant within-country heterogeneity such as regional, ethnic, linguistic, class, and institutional differences. A second concern, specific to the field of education, is that the model was initially developed from surveys about the workplace and involved settings and demographics different from those of young students. A third concern is the assumption of consistency of cultural values over time. Hassan (2025) adds value to the discussion on the relationship of general cultural dimensions to international students' lived experiences by reinforcing that many of the mechanisms and structures in U.S. HEIs may at their core be misaligned and be perceived as alienating to international students, and recommends self-assessment and key practices to reduce these barriers and provide a more inclusive and welcoming environment for students from different cultural and country backgrounds.

Alternate models of culture have been developed, including Schwartz's Theory of Basic Human Values which conceptualizes cross-national differences as tradeoffs among universal motivational value types (Schwartz, 2012), the Inglehart-Welzel cultural map derived from the World Values Survey and which emphasizes modernization-linked change along survival-self-expression and traditional-secular-rational axes (Inglehart & Welzel, 2005), and the GLOBE program which distinguishes cultural "practices" from cultural "values" and extends measurement to leadership-relevant dimensions (House et al., 2004).

## RESEARCH QUESTIONS AND HYPOTHESES

Students' culturally shaped acceptance of uncertainty and authority, and attraction to individual achievement and long-term investment, can influence students' perceived fit with a career or academic discipline. Concurrently, fields of study and their characteristic pedagogies can exhibit distinct culture-related attributes including degree of ambiguity, formalization and rigidity, competition, and time horizons. Against this theoretical backdrop, in which cultural orientations shape students' perceptions of academic disciplines and thereby correlate with field-of-study preferences, we ask two linked questions. The first evaluates whether culture provides explanatory leverage for discipline-level enrollment patterns:

*RQ1: To what extent does the selection of academic fields of study by international students in the United States correlate with culture dimensions of their home countries?*

We address the first research question by testing the following hypothesis against each distinct field of study selected by international students in the United States:

*H1: There is a (positive or negative) correlation between the culture dimensions of the home countries of international students in the United States and their selected field of study*.

Finding a correlation between students' field of study preferences and home country culture allows us to then ask whether this yields new information for international recruitment and program planning, and particularly the prioritization of countries (or cultures) with which to engage:

*RQ2: How does culture-based field of study preference rank countries of origin?*

We address the second research question by predicting, for each country with published culture measurements, the percentage of its international students enrolled in each field of study in the United States. The prediction uses the culture-based model of enrollment developed to test H1. For each field of study, we then rank countries by the percentage of enrollment and compare that with the ranking of countries by enrolled headcount:

*H2: For each field of study, the ranking of countries based on culture-predicted percent enrollment from that country will differ from rankings based on observed enrollment headcount.*

## METHODOLOGY AND DATASETS

This study uses the most recent published values of Hofstede culture dimensions from the Values Survey Module (VSM version 2015-12-08) (Hofstede, 2016) because they are relatively straightforward to interpret in a higher-education setting. Alternative frameworks either reduce coverage once matched to enrollment data, require addressing time-varying survey waves, or introduce significantly higher construct dimensionality (e.g., practices vs. values) that complicate interpretation for discipline-level enrollment prediction. Beugelsdijk et al. (2015) suggest that while Hofstede dimension values may shift in absolute terms, relative differences between countries tend to remain sufficiently stable to support comparative cross-national predictions.

Beugelsdijk et al. (2017) also report that Hofstede's model has been used successfully in diverse domains so long as the recommendations from Kirkman et al. (2006) are followed (as done in this paper): country and culture are not confused, effect size is reported, and additional dimensions are considered. Addressing the latter, the VSM includes constructs from the Minkov and Bond's Chinese Value Survey (Bond et al., 2004) and the Inglehart World Value Survey (Minkov & Hofstede, 2012). We nevertheless

treat Hofstede as a baseline specification within the broader cultural measurement debate, and propose comparative modeling with alternative cultural measures for future research.

For enrollment data, we use the Open Doors annual report published by IIE, which provides comprehensive data on the inflow of international students to the U.S. and the outflow of U.S. students studying abroad across twelve disciplines (IIE, 2024): business/management, engineering, mathematics/computer science, physical/life sciences, social sciences, health professions, education, fine/applied arts, humanities, intensive English, other, and undeclared. While some scholars have questioned the comprehensiveness of the Open Doors data, particularly in capturing smaller institutions with limited reporting resources (Glass & Whatley, 2025; Ogden & Rotoli, 2022), it remains the most widely used and cited dataset for studies of international education flows.

We select 2015 as the reference year because it aligns with the most recent comprehensive dataset of Hofstede's culture dimensions, enabling a consistent analysis of cultural and student mobility despite the availability of more recent Open Doors data. This approach ensures that observed patterns are attributable to cultural characteristics rather than artifacts of incomplete or temporally mismatched datasets. The five-year window is relatively free of major exogenous shocks, such as the COVID-19 pandemic or sudden geopolitical shifts, which could distort international enrollment patterns (Dennis, 2020). Rankings of host and origin countries for internationally mobile students remained largely stable during this period (Charbonnier, 2025), supporting the validity of using this dataset.

The VSM reports the six culture dimensions, with values normalized between 0 and 100, for each of 65 countries in 2015, and the IIE reports the 2013-2017 enrollment of international students from 25 countries into twelve distinct fields of study. Within this time frame, the VSM and IIE data have 18 countries in common, yielding for this study 90 country-year observations: 18 countries appearing in both the Open Doors and Hofstede datasets, five years each.

Developing a model with twelve dependent variables (enrollment in the twelve fields of study in the IIE dataset) would not be feasible given the available sample size and would risk overfitting and unstable parameter estimates. To address this limitation while maintaining interpretability, we aggregated fields into four related field of study groups based on shared human-capital characteristics, enrollment decision drivers, and labor-market orientation. The four groups are: (1) Business/Management (Biz); (2) Engineering, Mathematics/Computer Science, and Physical/Life Sciences (Eng+Sci); (3) Social Sciences, Health Professions, and Education (Soc+Ed); and (4) Fine/Applied Arts, Humanities, and Intensive English (Art+Hum). "Undeclared" and "Other fields" were excluded from the analysis due to the absence of consistent labeling across institutions, which would introduce additional noise without improving explanatory power.

These groupings reflect distinctions commonly used in higher-education and international student mobility research. The disciplines in the Eng+Sci group have in common high quantitative intensity, STEM classification, and similar drivers (e.g., research capacity, facilities, visa/work authorization, labor demand). The disciplines in the Art+Hum group have in common cultural and expressive competencies, and higher elasticity to cultural and geopolitical factors. The disciplines in the Soc+Ed group are often tied to service-oriented careers, show sensitivity to licensure, professional pathways, and public-sector demand, and are frequently grouped in international education and workforce studies examining social impact and applied professions. Biz is the only dependent variable represented as a single discipline in the IIE dataset (i.e., it is not strictly speaking a group of IIE disciplines).

To test H1, we first conducted a linear regression using the six culture dimensions to predict percentage enrollment into each of the four fields of study groups (four independent linear models, one per field of study group). We found reasonably good model fit (Linear columns in Table 1) but residual plots revealed a bimodal distribution of regression residuals suggesting that a quadratic model might yield more normally distributed residuals and explain more variance than a simple linear model (D'Agostino et al., 1990). We repeated the regression using the following quadratic ordinary least squares regression in which enrollment in a field of study group is modeled by

$$En_{j,k} = \beta_{1,j}\mathrm{PDI}_k + \beta_{2,j}\mathrm{PDI}_k^2 + \beta_{3,j}\mathrm{IDV}_k + \beta_{4,j}\mathrm{IDV}_k^2 + \beta_{5,j}\mathrm{MAS}_k + \beta_{6,j}\mathrm{MAS}_k^2 + \beta_{7,j}\mathrm{UAI}_k + \beta_{8,j}\mathrm{UAI}_k^2 + \beta_{9,j}\mathrm{LTO}_k + \beta_{10,j}\mathrm{LTO}_k^2 + \beta_{11,j}\mathrm{IVR}_k + \beta_{12,j}\mathrm{IVR}_k^2 + Constant_j \quad \text{Equation 1}$$

where the dependent variable $En_{j,k}$ is the percent enrollment (×100%) of international students from country $k$ in field of study group $j \in \{1, 2, 3, 4\}$, $\mathrm{PDI}_k$, $\mathrm{IDV}_k$, $\mathrm{MAS}_k$, $\mathrm{UAI}_k$, $\mathrm{LTO}_k$ and $\mathrm{IVR}_k$ are the six Hofstede culture dimensions of that country, and $\beta_{i,j}$ is the $j$'th field of study group regression coefficient for each dimension and its square $i \in \{1,\ldots,12\}$.

To test H2, we use the enrollment values predicted by Equation 1 to rank countries by cultural preference for fields of study. Specifically, we compare the percentage of a country's international students (grouped by field of study), as predicted by the country's Hofstede dimensions through the regression model, with the country's international student headcount (again by grouped fields of study) reported in Open Doors.

## RESULTS

For every field of study group, the quadratic OLS model (Equation 1) exhibits significantly improved residuals and model fit over the initial linear model (Table 1). Model coefficients of the Hofstede dimensions and their statistical significance are given in Table 2. To illustrate the nonlinearity of these relationships, Figure 1 plots the contribution of statistically significant dimensions to each field of study group, normalized to a common origin value of zero.

Power Distance (PDI) has the largest statistically significant effect of any culture dimension in three field of study groups, correlating negatively with the Business/Management (Biz) and Social Sciences + Health Professions + Education (Soc+Ed) groups, and positively with the Engineering + Math Computer Science + Physical/Life Sciences (Eng+Sci) group. Uncertainty Avoidance (UAI) has a strong and statistically significant convex correlation in all groups, except for the Eng+Sci group where this correlation is concave. The relationship between Individualism (IDV) and fields of study groups is similar to that of Uncertainty Avoidance, except for being not statistically significant with Fine/Applied Arts + Humanities + Intensive English (Art+Hum). Long-Term Orientation (LTO) has a predominantly positive and statistically significant correlation in all groups, except for the Eng+Sci group, where this correlation is predominantly negative. Indulgence is statistically insignificant in all groups except Biz where the effect is negative. In all field of study groups, Masculinity is not statistically significant. Altogether, the results support H1.

Addressing RQ2, we test H2 by comparing the percentage of a country's international students enrolled in a field of study group as predicted by the regression model using the country's Hofstede dimensions (Table 2), with the country's student headcount reported by Open Doors. Table 3 lists the twenty countries (or regional aggregates) with the highest model-predicted enrollment percentages for each field of study group. These predictions include countries with Hofstede scores that were not part of the 18-country estimation sample. Table 3 is derived using Equation 1, which predicts the percentage of students from country $k$ enrolled in field-of-study group $j$ based on that country's Hofstede dimension values.

**Table 1**
*Model fit, effect size, and residual normality of linear and quadratic regressions*

| | Linear | | | Quadratic | | |
|---|---|---|---|---|---|---|
| | $R^2$ | Adj $R^2$ | Shapiro-Wilk test | $R^2$ | Adj $R^2$ | Shapiro-Wilk test |
| Fine/Applied Arts + Humanities + Intensive English | 0.689 | 0.667 | 0.979 | 0.862 | 0.840 | 0.968 |
| Engineering + Math/Computer Science + Physical/Life Sciences | 0.417 | 0.375 | 0.889 | 0.907 | 0.892 | 0.963 |
| Business/Management | 0.338 | 0.290 | 0.970 | 0.731 | 0.689 | 0.979 |
| Social Sciences + Health Professions + Education | 0.548 | 0.516 | 0.964 | 0.714 | 0.670 | 0.972 |

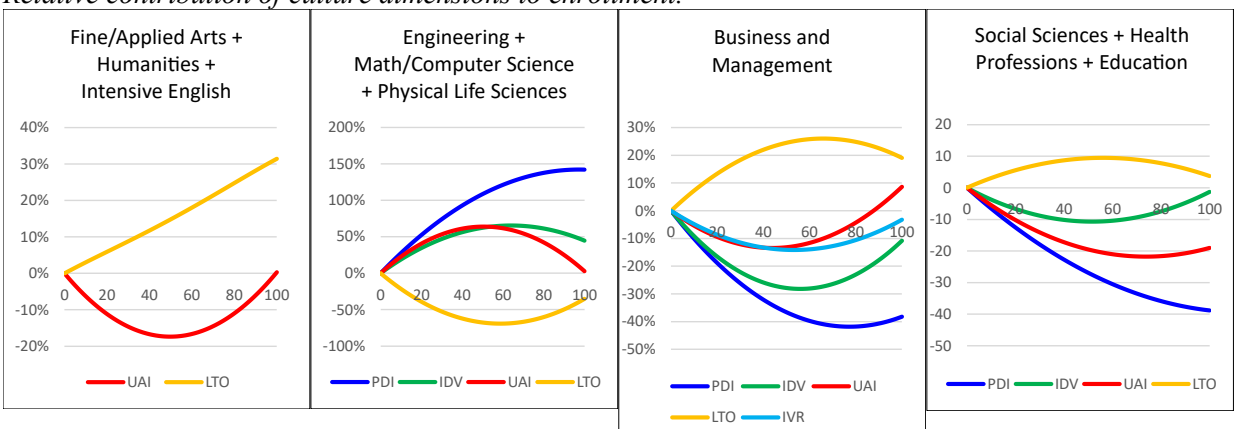
**Table 2**

*First and second order coefficients and statistical significance of Hofstede culture dimensions by field of study group*

| | Fine/Applied Arts + Humanities + Intensive English | | Engineering + Math/ Computer Science + Physical/Life Sciences | | Business and Management | | Social Sciences + Health Professions + Education | |
|---|---|---|---|---|---|---|---|---|
| | *β* | *p* | *β* | *p* | *β* | *p* | *β* | *p* |
| PDI | -0.209 | 0.216 | 2.922 | <.001 | -1.082 | <.001 | -0.688 | 0.003 |
| $PDI^2$ | -0.000 | 0.812 | -0.015 | <.001 | 0.007 | <.001 | 0.003 | 0.039 |
| IDV | -0.228 | 0.011 | 2.047 | <.001 | -1.008 | <.001 | -0.413 | 0.001 |
| $IDV^2$ | 0.000 | 0.661 | -0.016 | <.001 | 0.009 | <.001 | 0.004 | 0.001 |
| MAS | -0.074 | 0.678 | -0.172 | 0.688 | -0.205 | 0.477 | 0.144 | 0.543 |
| $MAS^2$ | 0.001 | 0.38 | 0.001 | 0.844 | 0.000 | 0.829 | -0.000 | 0.825 |
| UAI | -0.697 | <.001 | 2.528 | <.001 | -0.614 | 0.007 | -0.590 | 0.002 |
| $UAI^2$ | 0.007 | <.001 | -0.025 | <.001 | 0.007 | 0.001 | 0.004 | 0.008 |
| LTO | 0.314 | <.001 | -2.351 | <.001 | 0.791 | <.001 | 0.337 | 0.001 |
| $LTO^2$ | -0.003 | <.001 | 0.020 | <.001 | -0.006 | <.001 | -0.003 | <.001 |
| IVR | 0.226 | 0.041 | 0.043 | 0.868 | -0.532 | 0.003 | 0.295 | 0.044 |
| $IVR^2$ | -0.001 | 0.208 | -0.003 | 0.202 | 0.005 | 0.001 | -0.002 | 0.195 |
| Constant | 34.730 | 0.005 | -119.347 | <.001 | 93.776 | <.001 | 47.152 | 0.004 |

**Figure 1**

*Relative contribution of culture dimensions to enrollment.*




Open Doors data for the 2014/2015 academic year (the chronological center of the Open Doors data used to generate the OLS model) is displayed in Table 4. The table ranks the 25 countries with the most international students enrolled in each field of study group. As might be expected, most international students come from China and India (top two rows in Table 4). However, when comparing Table 3 and Table 4, we observe that students from other countries exhibit enrollment that is more focused on specific disciplines based on their culture dimensions. For example, in Table 3, China and India rank 10th and 7th, respectively, in the engineering, math, and sciences (Eng+Sci) field of study group and do not rank in any other field of study group. The differences between the two rankings support H2 and provide the basis for the recruitment implications discussed below.

**Table 3**

*Countries ranked by percentage of their international students in the United States enrolled in the field of study group (predicted by regression model)*

| # | Engineering + Math / Computer Science + Physical/Life Sciences | | Business / Management | | Fine/Applied Arts + Humanities + Intensive English | | Social Sciences + Health Professions + Education | |
|---|---|---|---|---|---|---|---|---|
| | Country | % | Country | % | Country | % | Country | % |
| 1 | Morocco | 90.1 | Pakistan | 48.1 | Greece | 40.9 | Denmark | 40.9 |
| 2 | Iran | 81.0 | Greece | 43.2 | Portugal | 30.2 | Austria | 39.2 |
| 3 | Arab Countries | 75.9 | Denmark | 40.9 | Uruguay | 28.2 | Great Britain | 38.8 |
| 4 | Africa West | 75.1 | Portugal | 40.7 | El Salvador | 27.7 | New Zealand | 37.2 |
| 5 | Slovak Rep | 74.1 | Austria | 39.8 | Austria | 27.4 | Ireland | 34.3 |
| 6 | Philippines | 72.9 | Serbia | 38.9 | Japan | 26.5 | Sweden | 31.8 |
| 7 | India | 62.6 | Romania | 38.4 | Malta | 26.2 | Australia | 31.2 |
| 8 | Africa East | 49.9 | Russia | 38.2 | Singapore | 24.1 | Canada | 30.7 |
| 9 | Malaysia | 46.5 | Bulgaria | 36.8 | Chile | 23.9 | Switzerland | 28.7 |
| 10 | China | 45.6 | Sweden | 36.7 | Peru | 22.6 | Singapore | 27.4 |
| 11 | Lithuania | 40.1 | Latvia | 36.7 | Slovenia | 22.0 | Netherlands | 27.1 |
| 12 | Bangladesh | 40.1 | Slovenia | 35.0 | Denmark | 21.2 | Norway | 23.8 |
| 13 | Estonia | 38.4 | El Salvador | 33.8 | Argentina | 21.0 | Hungary | 22.5 |
| 14 | Czech Rep | 38.2 | South Korea | 32.9 | Colombia | 20.8 | Finland | 22.4 |
| 15 | Latvia | 36.7 | Singapore | 32.4 | Turkey | 19.7 | Trinidad + Tobago | 22.3 |
| 16 | Thailand | 36.6 | Lithuania | 31.9 | Sweden | 19.3 | Luxembourg | 21.3 |
| 17 | Brazil | 34.4 | Netherlands | 31.3 | Spain | 19.1 | Germany | 20.8 |
| 18 | Taiwan | 30.2 | Peru | 30.7 | Belgium | 18.4 | Greece | 20.8 |
| 19 | Croatia | 29.6 | Chile | 30.4 | Serbia | 18.3 | Malta | 20.5 |
| 20 | Indonesia | 29.0 | Estonia | 29.4 | South Korea | 18.0 | Italy | 18.3 |

**Table 4**

*Countries ranked by number of international students in the United States enrolled in the 2014/2015 academic year in each field of study group (Open Doors data)*

| # | Engineering + Math / Computer Science + Physical/Life Sciences | | Business / Management | | Fine/Applied Arts + Humanities + Intensive English | | Social Sciences + Health Professions + Education | |
|---|---|---|---|---|---|---|---|---|
| | Country | # of students | Country | # of students | Country | # of students | Country | # of students |
| 1 | China | 124656 | China | 80571 | China | 28276 | China | 33140 |
| 2 | India | 102058 | India | 14219 | Saudi Arabia | 15406 | South Korea | 12487 |
| 3 | Saudi Arabia | 21820 | South Korea | 10640 | South Korea | 12232 | Canada | 8907 |
| 4 | South Korea | 16756 | Saudi Arabia | 9891 | Japan | 5014 | India | 8505 |
| 5 | Iran | 8776 | Vietnam | 6103 | Brazil | 4948 | Saudi Arabia | 7313 |
| 6 | Taiwan | 7201 | Taiwan | 4451 | Taiwan | 3842 | Japan | 2974 |
| 7 | Brazil | 6629 | Canada | 4086 | Mexico | 3700 | Taiwan | 2876 |
| 8 | Canada | 5911 | Japan | 3641 | Canada | 3187 | Great Britain | 2600 |
| 9 | Nepal | 5033 | Mexico | 2899 | India | 2658 | Mexico | 2217 |
| 10 | Turkey | 4772 | Brazil | 2865 | Vietnam | 2434 | Nigeria | 2117 |
| 11 | Vietnam | 4568 | Germany | 2681 | Kuwait | 2331 | Turkey | 2038 |
| 12 | Kuwait | 4427 | Indonesia | 2358 | Great Britain | 1440 | Brazil | 1989 |
| 13 | Mexico | 4144 | France | 2282 | Turkey | 1373 | Vietnam | 1891 |
| 14 | Nigeria | 4120 | Venezuela | 2044 | Colombia | 1369 | Germany | 1845 |
| 15 | Malaysia | 3239 | Great Britain | 1912 | Venezuela | 1341 | Hong Kong | 1578 |
| 16 | Thailand | 2410 | Hong Kong | 1795 | Spain | 1179 | Malaysia | 1164 |
| 17 | Indonesia | 2383 | Malaysia | 1555 | France | 1128 | Indonesia | 1155 |
| 18 | Japan | 2230 | Thailand | 1537 | Hong Kong | 1106 | Colombia | 1104 |
| 19 | Venezuela | 2107 | Turkey | 1458 | Germany | 1050 | Nepal | 1061 |
| 20 | France | 2055 | Colombia | 1448 | Thailand | 1018 | Venezuela | 955 |
| 21 | Colombia | 1971 | Spain | 1437 | Indonesia | 901 | Thailand | 938 |
| 22 | Germany | 1937 | Nigeria | 1339 | Iran | 737 | France | 936 |
| 23 | Hong Kong | 1739 | Nepal | 1167 | Nigeria | 437 | Iran | 782 |
| 24 | Great Britain | 1665 | Kuwait | 1156 | Malaysia | 412 | Spain | 780 |
| 25 | Spain | 1505 | Iran | 522 | Nepal | 204 | Kuwait | 479 |

## DISCUSSION

The models presented can predict enrollment in field of study groups from countries including those for which IIE data are not available. The **Engineering, Mathematics/Computer Science, and Physical/Life Sciences** (Eng+Sci) group correlates with students from high power distance cultures with moderate individualism and uncertainty-avoidance. This supports the notion identified in the literature review that high-PDI societies value hierarchical recognition and status, and students from such cultures may perceive engineering and sciences as prestigious, providing status-enhancing career paths (Mulvey, 2021; Khan et al., 2020). Individualistic cultures value personal achievement and innovation, which aligns with disciplines offering opportunities for independent problem-solving and innovation. High uncertainty avoidance cultures prefer structured and rule-based learning environments, consistent with the methodological rigor in engineering and science programs.

The **Business and Management** (Biz) group correlates with students from low power distance, collectivism, long-term oriented, restrained, and uncertainty-tolerant cultures. These patterns are consistent with prior studies linking cultural values to cooperative and strategic approaches in business education (Bicak & Taylor, 2020; Gutema et al., 2024). Low-PDI cultures emphasize egalitarianism and advancement with an entrepreneurial mindset (McLarty et al., 2023), encouraging collaborative learning, while collectivist students value teamwork and shared goals. Long-term and uncertainty-tolerant orientation aligns with the strategic forward-looking nature of the business and management discipline itself, further suggesting that cultural alignment can enhance recruitment messaging.

The **Fine/Applied Arts, Humanities, and Intensive English** (Art+Hum) group correlates strongly with students from cultures with long-term orientation. Such students may be open to exploration and motivated by future identity, mastery, and long-term societal contributions rather than immediate security. The financial uncertainty of these professions, relative to other professions offering better prospects for high-paying employment, may deter those avoiding uncertainty. This finding is consistent with literature noting that students from collectivist backgrounds are drawn to disciplines emphasizing cultural heritage, shared narratives, and social cohesion (Heng, 2018).

Finally, the **Social Sciences, Health Professions and Education** (Soc+Ed) group correlates with students from low power distance, collectivism, low uncertainty avoidance, and long-term oriented cultures. Education and health professions often focus on egalitarian relationships and the support and empowerment of others. Students from low power distance cultures may be attracted to these fields because they align with their social values of community and accessible authority. These disciplines also focus on community well-being, social support, and collaborative efforts to improve society, dealing with complex, evolving social issues that require adaptability and openness to new ideas. They are also more focused on the long-term impact on society. These results reinforce prior evidence that students from egalitarian and community-focused cultures tend to be drawn to professions emphasizing social support, collaborative problem-solving, and long-term societal impact (Tadaki & Tremewan, 2013).

### Practical Implications: Opportunities for International Exchange Diversification

Country rankings by students' preferred fields of study have implications for international recruitment strategies. While traditional source countries, notably China and India, have been the primary focus of recruitment efforts, the findings suggest that countries with higher preferences for a particular academic field of study offer valuable opportunities for diversification. For instance, the model predicts percent of students from Morocco, Iran, and Arab nations to enroll in engineering, mathematics, computer science, and physical/life sciences beyond the usual recruitment regions, suggesting potential value in developing recruitment efforts aimed at these markets even where their outbound student populations are smaller. This approach emphasizes the value of cultural alignment in identifying underrepresented markets, rather than relying solely on historical student volume.

In business and management studies, the prominence of countries like Pakistan, Greece, and Denmark points to opportunities with traditional markets less represented. Similarly, in fine and applied

arts, humanities, and intensive English programs, the high predicted enrollment percentages for Greece, Portugal, and Uruguay suggests a cultural affinity that recruitment can leverage, whereas Japan's notable ranking at #6 in Table 3 indicates opportunities to strengthen engagement in traditional markets by emphasizing programs that resonate with cultural interests. The greater predicted preference among students from European countries (Denmark, Austria, and Great Britain) in social sciences, health professions, and education supports diversifying outreach to include these countries.

Adapting recruitment messages to reflect cultural expectations and disciplinary preferences can strengthen resonance with new audiences, influence decision making, and prevent reliance on outdated strategies. Nevertheless, traditional markets remain a key source of students. Thus, the evidence suggests that successful recruitment and engagement strategies are not a matter of choosing between old and new markets but rather of tailoring to both, leveraging the volume of established partners while cultivating new relationships in culturally aligned regions. Such diversification helps recruitment pipelines remain responsive to shifting global conditions and mitigates institutional supply-chain risk.

A culture-conscious perspective also strengthens the ability of institutions to refine program design, communication, and support services in ways that reflect the motivations and expectations of diverse student groups. Such alignment enhances recruitment success and increases the likelihood of academic and personal satisfaction among international students, thereby reinforcing institutional reputation and long-term global engagement. In doing so, this study contributes to ongoing debates about how international higher education can evolve beyond transactional recruitment models toward approaches that are more sustainable, mutually beneficial, and culturally attuned. This aligns with recent calls in the literature to use cultural insights to enhance global student recruitment and broaden educational access (Mulvey, 2021; Tadaki & Tremewan, 2013; Heng, 2018).

The findings also have implications for higher education's role in public diplomacy. Universities help build cross-cultural relationships and mutual understanding between nations (Cull, 2008; Kamsaris, 2021; Lima, 2007; Mark, 2009) and function as strategic actors in global diplomacy (Melissen, 2005; Nye, 1990). For example, the attraction of students from countries such as Morocco and Iran to U.S. engineering programs, or from Greece and Portugal to U.S. humanities programs, reflects not only academic choice but also a broader willingness to engage with particular societies and values. Institutions that recognize this dual role can design recruitment and partnership strategies that advance both educational and diplomatic goals, thereby positioning universities as active contributors to soft power and mutual trust-building across nations.

**Limitations and Future Research**

Several limitations qualify our findings. The reliance on Hofstede's culture dimensions may oversimplify the complex and dynamic nature of culture. Hofstede's model uses national averages, which can mask regional, generational, and individual differences within countries (Hofstede, 2011). Cultures change slowly but are not static (Beugelsdijk et al., 2015), and the model may not fully capture current nuances or shifts over time, potentially affecting the applicability of the findings to today's student populations. Morera and Galván (2019) show how culture and its relationship with education can change over a long period of time when the timeframe encompasses a major political event (notably the fall of communism in Romania). Future research would benefit from updated cultural indices that better reflect contemporary cultural and geopolitical conditions.

Another limitation is that the study focuses primarily on cultural factors and does not account for other significant covariates such as economic conditions, political stability, language proficiency, institutional policies, and personal motivations. These factors and structural determinants also shape students' decisions to study abroad and their choice of field. By not incorporating these factors, the study may present a limited view and might not fully reflect the multifaceted nature of international students' choices. Moreover, the quantitative approach employed here, while effective for modeling broad trends, cannot capture the lived experiences, narratives, and motivations of international students. Qualitative methods, including interviews, focus groups, or narrative inquiry, would enrich future investigations by

illuminating how individual students interpret their cultural identities and educational choices within the global higher education landscape.

Future research could extend beyond the U.S. case to examine whether similar cultural patterns shape international student mobility in other major host countries, including the U.K., Australia, Canada, and emerging destinations in Asia and the Middle East. A comparative, multi-country approach would test the robustness of our findings and highlight whether culture dimensions operate consistently across higher education systems or whether they are contextualized by regional policy environments.

Future work can examine the portability of the reported culture-discipline relationships using alternative operationalizations of culture, such as the Schwartz or Inglehart-Welzel frameworks, to determine whether the strongest relationships reported here reflect broader cultural dynamics or are specific to Hofstede's operationalization.

## CONCLUSIONS

This study shows that national culture is associated with how international students distribute across academic fields in the United States. The results identify strong relationships between field of study preferences and Hofstede dimensions of culture, particularly power distance, long-term orientation, individualism, and uncertainty avoidance. These findings extend accounts of international student mobility in the literature by adding culture to economic, policy, and institutional factors. They also reinforce a more agentic interpretation of mobility: students' culturally shaped expectations and preferences influence how they perceive academic fields.

The findings also suggest a new way for institutions to conduct international recruitment and program planning. Recruitment strategies based on historical enrollment volume emphasize the largest sending countries, whereas culture-based estimates of disciplinary preference can reveal countries whose students may have a strong affinity to specific fields despite smaller current enrollment. Used alongside traditional criteria including market size, economic conditions, institutional reputation, visa policy, and employment opportunities, such estimates can help institutions identify additional countries for program-specific recruitment and diversification. Cultural awareness can also inform how institutions market programs and design student advising and support services.

Because international exchanges can serve as a form of soft power, institutions that ground their recruitment and programming strategies in cultural awareness can also help foster mutual understanding, reduce misconceptions, and build more durable forms of global cooperation**.** In this way, culturally informed internationalization may contribute both to HEI objectives and to more sustained and mutually beneficial international relationships.

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