International Migration

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Financing the Future: The Contribution of Scholarship and Self-Funded International Students to Short- and Long-Term Migration to the UK

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ABSTRACT

Most immigrants have entered the UK as students in the last decades—and student mobility is on the rise worldwide. Is student mobility inherently distinct and different from other sources of migration? Currently, the literature on student mobility remains largely disconnected from core migration studies. To inform both scholarly and policy debates, this paper examines the respective contributions of scholarship and self-funded students to overall migration to the UK, both in the short and long term. Utilising comprehensive administrative data, including an exclusive panel dataset obtained from UK authorities, the author shows that (1) self-funded students have become a significant source of immigration into the UK; (2) the majority of international students leave within 6 years, but a fifth stay in the UK for more than 10 years; (3) stay rates vary by country of origin and source of funding, with a higher proportion of self-funded students from poorer countries staying in the UK for 10 years or more, as compared to scholarship students or students from richer countries who are more likely to leave. In other words, while student migration has outnumbered other work or family migration in the last decade, it remains mostly temporary. Only 2% of former international students transition to citizenship within 10 years. Most students leave the UK, potentially contributing to the circulation of knowledge and knowhow across borders, as well as fostering valuable transnational ties.

1 | Introduction

Main channel of immigration to the UK, student mobility has gained increasing policy and scholarly attention as a key migration channel into OECD countries (OECD 2024). The UK issued more student visas in 2023 than any other OECD country, including the US, according to the OECD (2024, 34). This is striking given the UK's high tuition fees. Some have argued that scholarships offset such costs (Weber and Van Mol 2023), but research on the proportion and profile of self-funded versus scholarship students remains very limited—while this perspective proves to be a valuable lens for analysing their mobility. This paper examines how funding sources influence student migration patterns, in the short- and long-term.

Public debates in the UK highlight tensions between reducing net migration and the economic benefits of international students (IS), who contribute over £20 billion annually (Lewis et al. 2024). Integrating student migration into broader migration studies is essential for understanding international mobility and reshaping public perceptions by emphasising the positive contributions of migrants. Using a 15-year longitudinal administrative dataset (2006–2021), this paper investigates: (1) the role of self-funded and scholarship students in migration inflows; (2)

The role of scholarships and self-funding in Shaping International Student Migration to the UK.

the duration of their stays; and (3) factors influencing their long-term settlement.

Findings reveal that self-funded students from India, China, Nigeria and Bangladesh account for over half of international student inflows, with nine in 10 students self-funding their studies. While most leave within three to 4 years, a fifth remain for over a decade, making student mobility a major driver of settled immigration. Scholarship students are less likely to stay, whereas self-funded students from low-income countries are more likely to settle. These findings highlight the political economy shaping skilled migration to the UK.

These findings contribute to the literature by highlighting student migration as the primary driver of incoming migration over the past 15 years, underscoring its relevance to migration studies. They also reveal how funding sources shape mobility patterns, inviting further research on this nexus. Finally, the alignment of self-funded students' mobility with other migrant groups demonstrates the need to bridge higher education internationalisation and migration studies.

2 | Student Migration to the UK (2006–2021)

Net migration to the UK rose to a record high in recent years—the highest since the Office for National Statistics (ONS) began collecting migration statistics in 1964. Some stressed that migration from non-EU countries drove this rise (Suleiman et al. 2022). In fact, student migration has been the main source of immigration to the UK over the last decades. Students have outnumbered workers by a long margin—with over 3.3 million student visas, as compared to just under 2.3 million work visas, issued over the period (see Table 1). The number of student visas remained higher than any other visa categories at the time of writing.[1] The public discourse's disproportionate focus on irregular migrants and 'small boats' is striking, given that irregular arrivals might account for less than one-tenth of student visa numbers.[2]

The UK public discourse mirrors broader OECD trends since the mid-1990s, where immigration is often framed as a problem despite policies becoming less restrictive to attract students and high-skilled workers 'in the wake of the so-called global race for talent' (Boeri et al. 2012; de Haas et al. 2018). In the UK, integrating goals related to international students with the broader UK immigration framework has posed challenges for successive governments, leading to policy fluctuations. Student visa requirements have tightened, while pathways from student to work visas have been repeatedly revised. Meanwhile, the number of student visas issued has surged (see Table 1).

2.1 | Changes in Student Visa Policies and Work Rights

Since 2009, UK student visa applicants must be sponsored by a licensed education provider, unlike in the early 2000s when no formal acceptance letter was required. Visa requirements now also include language proficiency and financial resources.[3]

TABLE 1 | Number of visas issues by the UK between 2006 and 2021, by type of visa.

Year of arrival	Asylum	Dependants	Family	Resettlement	Safe & legal	Study	Work	Grand total
2006	16,155	25,014	51,098	0	0	182,490	209,183	483,940
2007	14,006	38,646	49,125	0	0	**185,415**	174,392	461,584
2008	15,769	37,993	42,604	0	0	**204,449**	151,815	452,630
2009	14,788	16,371	37,844	0	0	**269,128**	124,757	462,888
2010	10,764	14,487	38,391	0	0	**249,999**	130,132	443,773
2011	11,019	13,604	34,276	0	0	**221,682**	119,924	400,505
2012	10,982	11,027	31,717	0	0	**165,845**	115,764	335,335
2013	12,906	10,960	25,912	0	0	**169,434**	125,868	345,080
2014	16,800	10,627	29,354	0	0	**171,878**	136,930	365,589
2015	20,718	9360	31,579	1	0	**157,215**	135,298	354,171
2016	18,467	7713	32,804	2663	0	**152,127**	130,876	344,650
2017	16,570	8567	36,088	4929	0	**166,259**	127,470	359,883
2018	20,928	6165	39,376	4836	0	**179,931**	139,250	390,486
2019	23,635	8638	46,769	4804	1	**217,282**	158,251	459,380
2020	19,430	7411	32,435	719	1	**178,249**	99,088	337,333
2021	30,072	9151	34,926	1566	67,773	**368,519**	204,622	716,629
Grand total	273,009	235,734	594,298	19,518	67,775	**3,239,902**	2,283,620	6,713,856

Source: Home Office, Migrant Journey 2023 dataset (MJ_DO1). Highest number for each year in bold.

Work rights for students have remained consistent over the period: up to 20 h per week during term time and full-time during holidays. Dependants can work full-time (OECD 2022a, 2022b). However, post-study work rights have changed significantly. Between 2004 and 2012, graduates could stay and job search for 2 years. This was reduced from 2012 to 2021 (6 months for undergraduates, 4 months for graduates and up to a year for PhDs; MAC 2018; Chanda and Betai 2021). In August 2021, the Graduate Route reinstated a 2-year stay period (3 years for PhDs), allowing graduates to work in any job and later apply for a work visa (Walsh 2022). These work rights are key to attracting international students, positioning universities as providers of both education and employment opportunities (Manning 2023). The ability to work post-graduation makes UK education more appealing, particularly to students from low-income countries where UK wages are significantly higher.

2.2 | Impact of Brexit on EU Student Mobility

Before Brexit, EU students paid the same fees as UK students and had access to subsidised loans. Since 2021, they must pay international fees—often double the domestic rate—while also meeting visa and financial requirements (Walsh 2022).

As EU students did not require visas before 2021, UK administrative data lacks their records until then. However, other data sources show a decline in EU enrolment, from one-third of international students in 2015 to less than one-eighth in 2022/2023. Meanwhile, non-EU students have become the fastest-growing group of students and migrants (see Table 2).

2.3 | Economic and Strategic Benefits of Student Migration

Despite stricter visa rules and Brexit, the UK has issued record numbers of student visas in recent years. The approval rate has risen significantly, with refusals dropping from 29% in 2006 to under 3% in 2021–2022. Economic factors likely drive this trend. International students generate substantial revenue, helping fund domestic education, research and universities across the UK (Manning 2023). Their presence also boosts trade with their home countries (Murat 2014) and strengthens the UK's global influence by fostering diplomatic ties and promoting British values (Lomer 2016). Foreign-born talent has enhanced the UK's scientific standing, reinforcing the need to attract and retain top global researchers to maintain leadership in innovation (Johnson 2021). However, we know very little about talent retention in the UK.

2.4 | Research Questions

The political economy of student mobility remains largely understudied. For instance, there is insufficient analysis on the contributions of scholarship-funded versus self-funded students to both short-term and long-term migration patterns in the UK. To address existing gaps in the scholarly literature—and contribute knowledge to policy debates—this paper focuses on three research questions:

1. How do self-funded and scholarship students contribute to overall migration to the UK?
2. What proportion of international students stay in the UK after their studies, and how do stay rates differ depending on whether students are self-funded or not?
3. Which factors are associated with higher stay rates among scholarship and self-funded students?

This paper addresses these questions by drawing upon and contributing both to the literature on international migration and on the internationalisation of higher education—which tend to be disconnected despite potentially productive intersections.

3 | Stay-Rates at the Crossroads of Several Bodies of Literature

International student mobility has been studied since the 1950s (Pace 1959; Nash 1976), yet it remains largely disconnected from broader migration theories (Weber and Van Mol 2023) and social change frameworks (Van Hear 2010; de Haas 2021). Migration studies often overlook students as migrants, while student mobility research rarely contributes to migration theory. Consequently, little is known about students' long-term migration trajectories, including the financial factors influencing their stay rates.

This review highlights the need for a more integrated approach. First, it shows that the divide between migration studies and international student mobility research limits our understanding of students' contribution to global migration. Second, it stresses that studies on stay rates rarely examine

TABLE 2 | Higher education student enrolments by domicile, academic year ending July 2017 to year ending July 2022.

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/2023
EU	138,040	142,840	146,565	147,925	152,905	120,140	95,505
Non-EU	312,795	326,315	349,545	409,065	452,225	559,825	663,355
Total non-UK students	450,835	469,160	496,110	556,985	605,130	679,970	758,855
% of EU students	30.6%	30.4%	29.5%	26.6%	25.3%	17.7%	12.6%
% of non-EU students	69.4%	69.6%	70.5%	73.4%	74.7%	82.3%	87.4%

Source: Home Office reporting HESA data (See https://www.hesa.ac.uk/data-and-analysis/sb269/figure-9)—% calculated by the authors.

funding sources or the economic and political contexts at both origin and destination.

3.1 | Students' Absence From Migration Research

Despite the increasing scale of student migration, major migration studies omit international students (Natter et al. 2020; de Haas et al. 2018, 2019). This omission is surprising, as entering a country as a student can facilitate long-term settlement by providing linguistic skills and professional networks. Studies on the US (Dreher and Poutvaara 2011; Massey and Malone 2002) confirm that student migration is a significant entry channel but fail to assess students' likelihood of staying post-graduation. Further, research using administrative data from the US (Altbach 1991; Finn 2007; Johnson and Regets 1998) suggests that stay rates vary by country of origin and are influenced by home country economic conditions. However, these studies typically focus on specific countries rather than adopting a comparative approach. Additionally, while some research (Kim et al. 2010) includes funding sources, it remains US-centric, overlooking global trends.

3.2 | Migrants' Absence From Student Mobility Research

Conversely, studies on international students rarely compare them to other migrant groups, limiting their contributions to migration research. Existing studies tend to focus on US-bound students, neglecting the experiences of students in other OECD countries. While some research (Lanati and Thiele 2020) links scholarships to student migration, accurate data on stay rates and labour market participation remain scarce. OECD estimates (OECD 2022a, 2022b) rely on survey data from Australia and Canada rather than administrative records, further limiting insights.

3.3 | The Missing Link: Funding and Student Mobility

The role of funding in shaping students' migration decisions remains underexplored. Studies in the US indicate that self-funded students are more likely to stay post-graduation than those on scholarships (Kim et al. 2010; Selfa and Grigorian 2006). However, similar research beyond the US is lacking. Additionally, existing studies based on the US fail to analyse how economic conditions at both origin and destination influence stay rates over time.

3.4 | Towards a Transnational Perspective

This paper addresses these gaps by conceptualising student mobility as a response to evolving opportunities. It adopts a transnational and transdisciplinary approach, considering historical, social, economic and political factors at both origin and destination. By incorporating longitudinal and comparative data, this study provides a more comprehensive understanding of how funding and broader contexts shape international student migration.

4 | Definitions, Data and Empirical Strategy

4.1 | Definitions

According to the UN, an international student or foreign student is 'a person admitted by a country other than their own, usually under special permits or visas, for the specific purpose of following a particular course of study in an accredited institution of the receiving country'. A long-term immigrant is a person 'who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence. From the perspective of the country of departure, the person will be a long-term emigrant and from that of the country of arrival, the person will be a long-term immigrant'.[4] In this paper, we differentiate between three categories: *long-term* immigrants (abroad for 12 months or more); very long-term immigrants or *settled* immigrants (abroad for 10 years or more); and *permanent* immigrants (who have become UK citizens).

4.2 | Data

This paper draws on two main data sources: publicly available UK Home Office data on immigration inflows and a Freedom of Information-obtained dataset detailing the immigration status of all student visa holders (The author thanks her colleagues to their feedback on the quantitative analyses presented here). The unique source of information includes funding sources, enabling comparisons of arrival and stay rates between self-funded and scholarship students between 2006 and 2021.

4.3 | Analytical Approach

To analyse these cohort-based cross-national time-series data for stay rates, we use a three-level multilevel design. This design is organised so that country-years by arrival cohort (Level 1) are nested within country-years (Level 2) in countries (Level 3). This approach enables the examination of conditions in sending countries, as it allows us to assess how these factors correlate with migration patterns over time.

At Level 1, we include the stay rates of each cohort over time by country as the outcome variable. At Level 2, we include cross-national time-series measures of economic, political and social characteristics of the UK and home country context, derived from public archival sources including UNESCO and the World Bank databases. At Level 3, we append measures of time-invariant country characteristics for geographic regions and historical relationships with the UK, such as Commonwealth affiliation.

The UK Home Office's immigration status data originally included 177 countries from 2006 to 2021.[5] However, we had to drop 47 countries and the year 2021 due to missing data on several key Level 2 variables. Additionally, the dataset does not provide information on countries affiliated with the European Union (see above). As a result, the sample includes 40 countries in Sub-Saharan Africa, 32 in Asia, 20 in the Middle East and North Africa, 25 in the Western Hemisphere and 13 in non-EU Europe. While we used the full sample to characterise inflows, we analyse stay

rates based on a sample restricted to cohorts, which arrived in the years 2006 to 2011 in order to gain a comprehensive understanding of changes in stay rates over a period of at least 10 years. Consequently, the final sample size for the multivariate analyses of self-funded students is 8875 country-year-cohorts clustered within 1875 country-years in 130 countries; while for the analysis of scholarship-granted students, we have 4661 country-year-cohorts clustered within 1553 country-years in 130 countries.

4.4 | Modelling Strategy

4.4.1 | Dependent Variable

The dependent variable for this study is the annual stay rate of UK-bound international students. This variable indicates the percentage of international students who remain in the UK from the same arrival cohort. It comprises three administrative categories: Valid Visa Holders (regardless of the type of visa), Indefinite Leave to Remain or Citizen. The stay rate is calculated at the country-year-cohort level, with the formula:

$$\text{Stay rate}_{lmn} = \frac{\text{Stay}_{lmn}}{\text{Inflow}_{lm}} \times 100 \quad (1)$$

where stay rate$_{lmn}$ is the stay rate of self-funded or scholarship-granted students for cohort l belonging to country m in year n; inflow$_{lm}$ is the number of UK-inbound international students who initially came to the UK for cohort l in country m; and stay$_{lmn}$ is the number of UK-inbound international students of cohort l in country m who stay in the UK at year n. See Appendix A for further details on the modelling strategy.

4.5 | Limitations

Several empirical limitations must be considered. Our data does not capture individuals who leave the UK temporarily and return under a different visa, leading to conservative estimates of former international students who settle. Additionally, less than 1% of student visas were unused pre-pandemic (Home Office 2023), but some visa holders may not reside in the UK. The dataset also lacks key individual characteristics (e.g., age, gender, parental education, socioeconomic status) and field of study information.

While we can analyse stay rates, we cannot determine why students chose the UK or track return rates; departures may lead to home or third-country migration. This may overemphasise origin and destination contexts while underestimating external influences when modelling stay rates. Lastly, EU students, who required no visa until 2021, are absent from our dataset, limiting research on Brexit's impact on stay rates.

5 | Findings

5.1 | I—Student Mobility's Contribution to Short-Term Migration (2006–2021)

Self-funded foreign students have outnumbered all other categories of immigrants in the UK over the past decades. They have primarily come from a few select countries—India, Nigeria and China—contributing significant sums to UK universities and society.

5.1.1 | One in Two Migrants Enters the UK as a Student

Looking at student mobility sheds light on international mobility at large: foreign students outnumbered any other categories of migrants in the UK between 2007 and 2021. Over the period, the UK granted over 3 million work visas and over 5 million study visas (Table 1).

The number of IS has increased significantly since 2006. Fluctuations in the number of student visas granted might reflect, at least in part, policy changes in the UK. For instance, there was a slight decline in the number of student visa applications in 2010 (−19,129 visa issued) following a change in the rules to apply for a visa in 2009 (see above). A more significant decrease occurred in 2011 and 2012 (−28,317 and −55,837 visa applications, respectively) which could be in part linked to the introduction of restrictions on post-study work rights in the UK. By contrast, the introduction of the Graduate Visa in 2021 was followed by record high application numbers, with a notable increase of +190,279 visas delivered in 2021 and + 187,422 delivered in 2022. A number of factors beyond UK migration policy could influence these figures—which motivates the multivariate analyses presented in Section 3.

5.1.2 | Nine in Ten IS Are Self-Funded

The number of both self-funded and scholarship students has been increasing at a fast pace. Post-Brexit UK is highly attractive to Asian and African nationals from a few selected countries—who accounted for 85% of all student visas.[6] The highest number of *student* visas was granted to India (178,624), Nigeria (119,997), China (103,637), Pakistan (36,429) and Bangladesh (21,799); while the main countries for *overall* migration to the UK were: India (750,524 visas granted), Nigeria (251,534 visas), Ukraine (238,562) and China (197,745).

Given particularly high tuition fees for international students in the UK (see above), we could expect scholarships to play a key role in enabling student mobility. However, students from low- and middle-income countries (LMIC) largely fund their own studies. Scholarship students make up a minority of all incoming students: nine out of 10 students are self-funded (see Figure 1). Overlooking the drop in 2020, due to the pandemic, we note a constant and notable increase in the number of self-funded visas delivered to Chinese students (+353% over the period); and a more recent net increase in the number of visas granted to Nigerian students (+248%). The number, as well as the proportion, of self-funded students from selected countries increased significantly since 2006 (see Table 3)—with the most notable increase for Nigerian students. Inflows from only three countries—China, India and Nigeria—made up 46% of all student visas in 2015 and reached 65% of student visas delivered in 2021. In recent years, more than one out of every two international students in the UK came from China, India or Nigeria[7]—overwhelmingly on their own funds, which means that students from these three countries are contributing significant sums to UK universities.

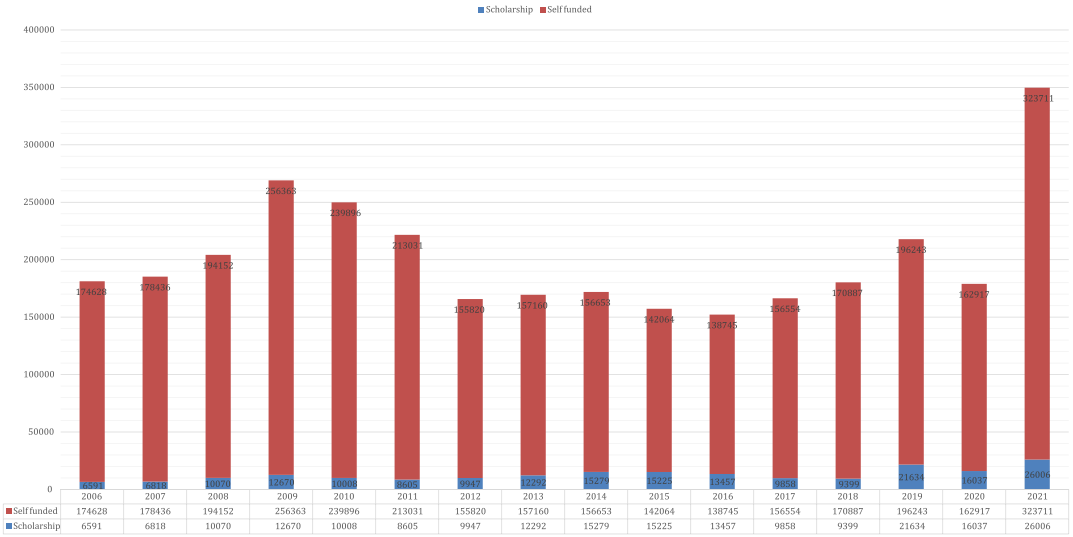

FIGURE 1 | Total number of student visas delivered by the UK since 2006, by source of funding. *Source:* Home Office dataset.

TABLE 3 | Variation in the number of self-funded student visas delivered by the UK since 2006 for top five countries, by total number of student visas delivered in 2021.

	Self-funded			Scholarship			Total
Home country	**2006**	**2021**	**%Δ (2006–2021)**	**2006**	**2021**	**%Δ (2006–2021)**	**2021**
China	19,025	88,541	365%	30	2158	7093%	90,699
India	19,548	74,290	280%	59	2139	3525%	76,429
Nigeria	6540	22,735	248%	2	1042	52,000%	23,777
Pakistan	11,144	12,927	16%	3	459	15,200%	13,386
United States	8291	9836	19%	80	3079	3749%	12,915

Source: FOI dataset.

5.1.3 | Fast-Rising Number of Scholarship Students From Selected Asian and Middle Eastern Countries

While a minority, the population of scholarship students is increasing even faster than that of self-funded students between 2006 and 2021. Their contribution to overall inflows almost doubled, from 3.6% of all student visas in 2006 to 7.4% in 2021 (see Table 3). This is remarkable considering the skyrocketing number of self-funded students (see Figure 1). This rise in scholarship students is driven by a few selected countries—and suggests increased availability of funding for students from the US, Ghana and Nigeria (see Table 3). Further research is needed to identify the sources of funding, mechanisms of allocations and potential requirements associated with these scholarships. Flagship scholarship programmes, such as the Chevening programme or the Commonwealth scholarships, include a clear and firm requirement for students to go back to their home countries upon completion of their programmes,[8] which might impact their stay rates, as the next section shows.

5.2 | II—Students' Stay-Rates (2006–2011 Cohorts)

Students make up for 1 out of 4 settled immigrants (who stayed more than 10 years in the UK). Stay rates are significantly higher among individuals originating from poorer countries.

5.2.1 | Students' Contribution to Settlement Immigration: Overall Trends

Student mobility is an important source of long-term and settled migration to the UK. Out of a total of over 2.7 million newcomers who entered the UK between 2006 and 2011, 30% (816,055 individuals) were still holders of a valid visa in 2021 (see Tables 4 and 5).[9] The *proportion* of people who entered the UK between 2006 and 2011 and remained valid visa holders in 2021 is higher for those who entered on a family visa (86% of 253,338) or a work visa (25% of 910,203) compared to those who entered on a student visa (16% of 1,313,163). However, given the large number of student visas issued, student mobility is an important route of entry for migrants who stay in the UK for 10 years or more, with 206,395 individuals who entered the country on a student visa between 2006 and 2011, 230,948 who entered on a work visa, and 218,173 individuals who entered the country on a family visa, who were still authorised to remain in the UK in 2021 (see Table 4).

Time spent in the UK on a student visa does not count towards the five-year residency requirement for settlement. Individuals must first switch to a different visa category to begin the five-year countdown. Consequently, settlement is typically not possible until at least six years after arrival for students. In line with

TABLE 4 | Number of individuals arrived between 2006 and 2011, by type of visa (including dependants).

Total number of visas granted, by year	2006	2007	2008	2009	2010	2011	Total 2006–2011
Study	182,490	185,415	204,449	269,128	249,999	221,682	1,313,163
Work	209,183	174,392	151,815	124,757	130,132	119,924	910,203
Family	51,098	49,125	42,604	37,844	38,391	34,276	253,338
Dependants joining or accompanying	25,014	38,646	37,993	16,371	14,487	13,604	146,115
Asylum	16,155	14,006	15,769	14,788	10,764	11,019	82,501
Grand Total	483,940	461,584	452,630	462,888	443,773	400,505	2,705,320

Source: Home Office, Migrant Journey 2023. Author's calculations.

TABLE 5 | Number of individuals arrived between 2006 and 2011 holding a valid UK visa in 2021, by type of visa (including dependants)—based on status at the end of 2021.

Number of holders of a valid visa in 2021, by year of arrival	2006	2007	2008	2009	2010	2011	Total 2006–2011
Study	31,631	29,326	28,495	42,716	41,859	32,368	206,395
Work	59,398	40,078	33,424	35,479	35,666	26,903	230,948
Family	42,325	41,876	36,893	32,623	33,877	30,579	218,173
Asylum	15,577	12,999	14,708	13,918	10,280	10,532	78,014
Dependants joining or accompanying	13,770	23,086	21,511	9269	7847	7042	82,525
Grand Total	162,701	147,365	135,031	134,005	129,529	107,424	816,055

Source: Home Office, Migrant Journey 2023. Author's calculations.

this, administrative data show that most visa transitions occur within the first seven years after a student's arrival. Beyond this point, changes become increasingly rare: fewer than 1% of individuals switch visa types after seven years, and virtually none do so between 9- and 15-years post-arrival. A student's visa status 10 years after arrival therefore provides a reliable indicator of their long-term migration trajectory. Based on this logic, our analysis focuses on individuals who arrived in the UK between 2006 and 2011—that is, at least 10 years before the final data point in our primary source (2021)—to identify which former international students go on to settle in the UK.

5.2.2 | Stay-Rates by Source of Funding

94% of scholarship student visas delivered between 2006 and 2011 had expired by 2021, compared to 85% of self-funded student visas. Scholarship students are both fewer in number—one-tenth the size of self-funded students—and less likely to remain in the UK long-term. Consequently, by 2021, only 3049 individuals who initially arrived on a scholarship visa more than a decade earlier still held a valid UK visa, compared to 189,199 self-funded students—62 times more. Citizenship rates also differ: only 2% of scholarship students from this cohort had become UK citizens by 2021, compared to 7% of self-funded students. While naturalisation rates are negligible for students from China or the US, they rise to 6% for Nigerian students and 10% for Gambian students. Overall, scholarship students contribute minimally to settled migration, whereas self-funded students play a more significant role. Indeed, among all immigrants who arrived between 2006 and 2011 and remained in the UK in 2021, 25% initially came on a student visa, 28% on a work visa and 27% on a family visa (see Table 5).

5.2.3 | Stay-Rates by Country of Origin: Main Contributors to Long-Term and Settled Migration

Unsurprisingly, the countries which send the highest number of international students in the UK also tend to have the highest number of individuals still living in the UK 10 years after their arrival (see Figure 2). However, there have been notable changes over time. Between 2006 and 2011, India was the leading source country for settled immigrants who initially arrived as students. However, since 2011, China has surpassed India and become the primary source country for settled immigrants in the UK in the last year included in our dataset.

In sum, this section shows that about 84% of international students have left the country after 10 years. Around 16% of international students remain in the UK. Only a tiny proportion (1 out of 50 students) becomes UK citizens (as compared to one out of 10 workers).

5.3 | III—The Factors Shaping Students' Stay-Rates (2006–2011 Cohorts)

Self-funded students are more likely to stay in the UK in the long term, as compared to scholarship students, irrespective of their

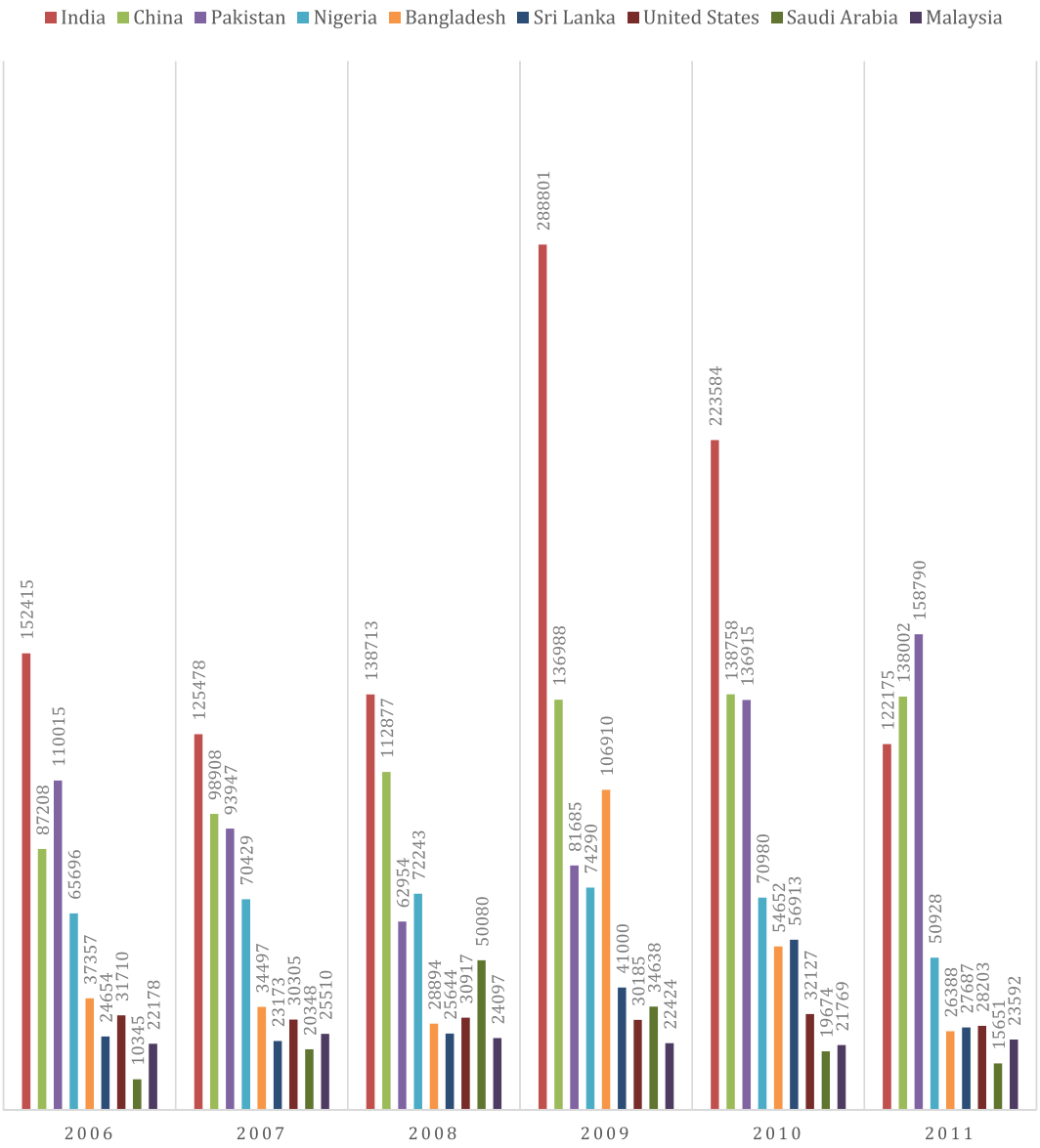

FIGURE 2 | Number of valid visa holders at the end of 2021 for students arrived between 2006 and 2011, top 10 countries (in total number of students holding a valid visa in 2021).

year of arrival (see Figure 3 comparing stay rates across cohort, i.e., by year of arrival). However, among self-funded students, stay rates decreased after 2012, which coincides with a policy change that limited their ability to look for work in the UK (see Section 2).

Comparing student visas delivered by continent of origin and source of funding shows that the difference in stay rates for scholarship vs. self-funded students is most noticeable in the case of African students: 43% of self-funded African students are still in the UK 10 years after the issuance of their first visas, as compared to 29% for scholarship students from Africa; that is a 14-point difference. The difference in stay rates by source of funding is less important for students from other regions: 10% for non-EU European students, 6% for American students, and less than 5% for students from other regions, with scholarship students always being less likely to stay in the UK as compared to self-funded students. A closer look shows that stay rates vary significantly across but also within regions, with sharp differences between countries of origin.

Overall, the proportion of students who stay in the UK appears to be under 20% for students from high-income countries such as the US and Brazil; between 20% and 40% for students from middle-income countries such as China, India, Turkey, Russia; over 50% for students from low-income countries, such as Nigeria, and The Gambia. Such variations by countries of origin and source of funding prompt further investigation of the factors associated with students' stay rates. The author used the full sample available (130 countries) to model stay rates over time as a function of the differential in opportunities in students' countries of origin and in the country of destination (see Section 4). The results are presented in Table 6.

Our multivariate analyses confirm the following trends.

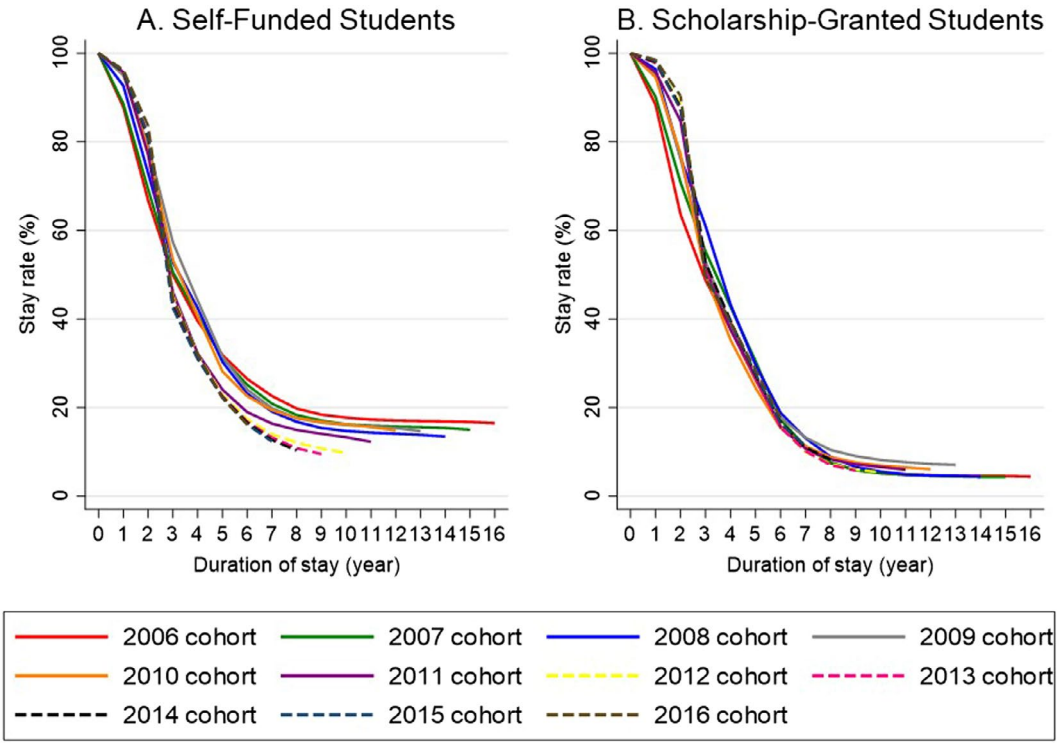

FIGURE 3 | UK Stay Rates of International Students by Duration, 2006–2016 Cohorts from 177 Countries (excluding: Refugees, stateless, British oversees citizens and other and unknown).

5.3.1 | Economic Opportunities Shape Student Trajectories

Better economic conditions in the country of origin are correlated with lower stay rates in the UK. When the GDP per capita at origin increases relative to that of the UK, students' incentives to stay decrease; we observe lower stay rates for both self-funded and scholarship students. Conversely, when unemployment in the country of origin rises and job prospects worsen compared to the UK, students are more likely to seek employment in the UK; we observe higher stay rates across all categories of students.

However, the relationship between stay rates and economic conditions is nuanced. For *self-funded students*, stay rates show a stronger correlation with GDP per capita in their home countries. A decline in GDP per capita at origin can limit their financial ability to remain in the UK post-graduation, making them more reliant on securing economic resources either personally or through family support. This suggests that self-funded students' decisions to stay are not only influenced by employment prospects but also by their networks' ongoing financial capacity to support them if immediate employment in the UK is not secured.

In contrast, *scholarship students* are less affected by GDP per capita in their countries of origin and more influenced by job opportunities in the UK. This likely reflects the fact that scholarship students might rely less on networks based in their home countries, which reduces their dependence on financial resources from home. However, once their scholarship period ends, obtaining employment becomes essential for remaining in the UK. Their trajectories, therefore, hinge on the availability of suitable jobs at the destination rather than ongoing support.

These patterns underscore the complex interplay between economic constraints and migration decisions. They also highlight potential inequalities in post-study opportunities: self-funded students may have more flexibility to remain unemployed temporarily, while scholarship students, despite their qualifications, may face stricter constraints if they cannot secure immediate employment.

5.3.2 | Democracy Matters

Improvements in the political context of a student's home country are correlated with lower stay rates in the UK. When the democracy index at origin improves relative to that of the UK, students are less likely to remain in the UK. This finding resonates with Gibson and McKenzie's (2011) conclusions on returnees' preference for democratic governance and fairness. The correlation between the democracy index and stay rates is observable for *self-funded students*, who seem to have greater autonomy in choosing whether to remain in the UK. This group may weigh political stability and democratic quality at home more heavily in their decision-making processes. By contrast, the trajectories of *scholarship students* do not seem linked to democratic changes in their home countries. This could be because scholarship programmes often impose return requirements (see above) that are largely unaffected by the evolving political context of origin countries.

However, this correlation between stay rates in the UK and democratic governance abroad may reflect a deeper, bidirectional relationship. Seminal studies (Spilimbergo 2009; Kapur 2010; Kapur and McHale 2014) posit that foreign-educated returnees can actively contribute to enhancing democratic institutions in

TABLE 6 | Regression results.

	Self-funded	Scholarship
Country-year-level variables		
GDP per capita (logged) ratio$_{(t-1)}$	−82.641*** (11.053)	−39.666* (16.158)
Unemployment rate ratio$_{(t-1)}$	7.378*** (0.434)	9.305*** (0.770)
Liberal democracy ratio$_{(t-1)}$	−7.993** (2.622)	0.404 (4.112)
Migrant stock-to-population ratio (logged)$_{t-1}$	2.527** (0.770)	3.553** (1.118)
International student to population ratio (logged)$_{t-1}$	2.121** (0.523)	−1.506 (0.959)
Country-level variables		
Region (ref. = Non-EU Europe)		
Sub-Saharan Africa	6.053 (4.111)	17.982** (5.703)
Asia	16.456*** (3.939)	16.094** (5.372)
Middle East and North Africa	6.476 (3.972)	4.466 (5.371)
Western Hemisphere	15.248*** (4.001)	13.815* (5.568)
Commonwealth	−1.341 (3.034)	−14.893*** (4.229)
Constant	161.055*** (12.984)	108.846*** (19.780)
Variance components		
Country level	115.196	198.593
Country-year level	28.490	20.392
Country-year-cohort level	234.647	510.180
Fit statistics		
AIC	74919.99	42811.12
−2 log likelihood	74879.99	42771.12
N (countries)	130	130
N (country-years)	1875	1553
N (country-year-cohorts)	8878	4661

Note: Unstandardised coefficients (standard errors in parentheses). Controls for duration of stay in the U.K. and cohort dummy variables are included in the models but not shown here to conserve space. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$ (two-tailed tests).

their home countries. This dynamic creates the potential for a positive feedback loop: improved political conditions encourage return migration, and the skills and perspectives brought back by returnees further reinforce democratic governance. In this sense, causality could run in both directions; more longitudinal and transnational research would be needed to disentangle the interplay between student migration and democratic development. These patterns highlight the complexity of student mobility, where individual agency, economic resources and institutional constraints intersect with broader political developments. They also underscore the need to explore how democratic conditions influence not only migration decisions but also the broader societal impacts of return migration, potentially contributing to a cycle of political and economic transformation in origin countries.

5.3.3 | Diasporic Networks Matter

The size of the diaspora in the destination country is positively correlated with students' likelihood of staying in the UK long-term, for *both* scholarship and self-funded students. This finding reinforces the well-established insight from migration literature that the presence of co-nationals can significantly ease the settlement process by offering social support, cultural familiarity and expanded job prospects (Taylor et al. 1996; Ramos et al. 2019). For all students, these networks may offer critical resources such as housing assistance, employment referrals and emotional support, allowing for more flexible post-graduation plans. For *scholarship students*, diasporic networks may help overcome the challenges of transitioning from structured academic programmes to professional life, particularly if they face constraints linked to the terms of their scholarships.

This positive correlation observed in our model highlights the broader significance of diasporic networks for both subpopulations. Beyond facilitating immediate settlement, diasporic ties can influence long-term outcomes, such as career advancement, community integration and even the potential for future return migration. However, while the migrant stock-to-population ratio provides a useful quantitative measure, it has limitations. In addition to the concerns raised in Section 4, our measurement does not fully capture the intricate dynamics of diasporic networks. The quality, depth and structure of these networks—including factors such as the socio-economic status of co-nationals or the cohesiveness of the community—can all influence the extent to which diasporas facilitate integration and settlement. Additionally, the degree of transnational engagement (e.g., connections to institutions, businesses and cultural organisations spanning origin and destination countries) plays a crucial role in shaping individual migration trajectories.

5.3.4 | Former Colonial Ties Matter More for Self-Funded Students

Self-funded students from Commonwealth countries seem slightly more likely to remain in the UK after their studies, even when accounting for diaspora size. This supports the idea that linguistic and historical ties, shaped by colonial legacies, can facilitate smoother integration and encourage long-term settlement in immigration countries (see Adserà and Pytliková 2015;

Ploner and Nada 2020). Shared language, cultural familiarity and institutional similarities likely reduce the barriers associated with adapting to life in the UK.

In contrast, *scholarship students* from Commonwealth countries exhibit significantly lower stay rates. This trend is probably driven by the structured return requirements embedded in many scholarship programmes, such as the Chevening and Commonwealth Scholarship programmes, which obligate recipients to return home immediately upon completing their studies. These requirements often reflect broader development goals, aiming to ensure that the skills and knowledge gained contribute to capacity building in the students' home countries.

This divergence in stay rates between self-funded and scholarship students underscores the intersection of financial independence, institutional obligations and historical ties in shaping migration outcomes. While self-funded students have the flexibility to leverage connections to pursue long-term settlement, scholarship students navigate constraints imposed by the conditions of their funding. Further research is needed to explore the extent to which these return requirements influence career trajectories and to determine whether exceptions or circumstantial factors might affect compliance with these obligations.

Overall, the multivariate analysis results indicate that students' post-graduation decisions are probably influenced by opportunities in their home countries. Students who perceive better economic prospects and improved political conditions at home are more likely to leave the UK upon graduation. While stay rates are an inaccurate proxy for returns, we do posit that there is a negative correlation between stay rates and students' return to their home countries (see Section 4). As a matter of fact, students from countries with limited economic opportunities and lower levels of democracy are more inclined to remain in the UK.

In line with established migration literature, we observe a significant influence of economic, political contexts and diasporic networks on stay rates. However, our findings contribute a new dimension by revealing how these patterns vary depending on students' sources of funding. Specifically, *self-funded students* appear to be more sensitive to the economic and political context in their home countries. In contrast, *scholarship students'* decisions are less responsive to the political context of their home countries, suggesting more constrained trajectories, with decisions to stay or return being shaped by the conditions tied to their funding. In other words, self-funded students appear to have greater agency in shaping their post-graduation trajectories. This highlights a potential further inequality between students who can draw on financial or social support networks in their countries of origin and those whose opportunities are primarily determined by their academic merit and the constraints of scholarship programmes. This disparity underscores how socio-economic privilege can enhance flexibility and decision-making power, while more constrained resources may limit students' ability to navigate their futures independently.

6 | Discussion and Conclusion

6.1 | Discussion

Descriptive statistics show that student migration is an important source of settled migration in the UK. However, post-study, the UK presents conditions that are particularly attractive to citizens from low-income countries. In contrast, the vast majority of citizens from middle- to high-income countries tend to leave the UK after completing their studies (Sections 1 and 2).

Multivariate analyses show that the mobility patterns of *self-funded* students in the UK align with well-established findings in the international migration literature, which emphasises the roles of economic opportunities at both origin and destination, as well as the influence of diasporic networks in facilitating settlement (Massey and Espana 1987; Massey et al. 1993; Güngör and Tansel 2005; Finn 2007; Kim et al. 2010). These patterns may also reflect self-funded students' stronger incentives to remain and work in the UK in order to recoup the costs of their education. By contrast, scholarship recipients are less likely to remain in the UK after completing their studies. Return obligations linked to scholarship conditions and more limited personal financial resources can constrain their post-study options. Agency is shaped by broader socio-economic conditions (Bourdieu 1974; Sen 1999; Bakewell 2010)—with financial insecurity narrowing the scope for autonomous decision-making.

The multivariate results demonstrate that scholars interested in the internationalisation of higher education can productively apply migration theories to student mobility to better understand the dynamics shaping students' trajectories. In turn, in line with recent contributions (Weber and Van Mol 2023), this paper confirms the relevance of mainstreaming the analysis of student mobility to better understand international migration. However, the divergence in stay rates between self-funded and scholarship students underscores the need to consider how migration is financed when analysing mobility patterns. This lens offers valuable insights that could be extended to other types of migration, such as comparing how different forms of sponsorship, including those attached to work visas, influence the duration and nature of migrants' stays. This could further illuminate how financing mechanisms and institutional factors shape migration decisions and outcomes.

These findings not only advance theoretical understandings of migration but also inform policy debates on education and migration governance. The data on scholarship students demonstrate that effective institutional mechanisms can limit individuals' settlement. Interestingly, however, the introduction of the Graduate Route visa is likely to encourage former students to settle in the UK—which could be seen as 'brain capture' for the UK, encouraging highly competent, foreign-educated citizens from key source countries such as China, India and Nigeria to settle in the UK.

At the policy level, this paper emphasises the need to avoid a double discourse. British authorities have been presenting immigration as an issue they are attempting to 'curb', while simultaneously granting record high numbers of visas to over 90% of

applicants. This communication strategy could fuel discrimination and result in poorer integration outcomes. Instead, communicating about international students' contribution to the UK economy, its science and society could be a powerful and strategic way to shift perceptions of immigration in the UK. Changing the discourse on migration seems especially timely, given that a record number of highly skilled foreign-born individuals will be seeking jobs in the UK in the coming years, following the introduction of the Graduate Route by the last Conservative government.

6.1.1 | From Local to Global Actors

The increase in the number of international students appears to be driven by a combination of economic incentives—such as higher tuition fees paid by IS—and the broader economic, political and scientific contributions these students bring. It also results in several actors acting in concert, in particular the UK government and UK universities, both of which are responsible for vetting each international student entering the UK.

UK universities actively lobby the UK government to admit more international students (Manning 2023); they try to shape UK migration policies to their benefit. In addition, universities' recruitment strategies influence the implementation of UK policies by shaping the geographic and demographic composition of incoming students. UK universities actively recruit international students and pursue deliberate, concerted strategies to diversify their international student body by targeting specific nationalities[10]—influencing who applies to study in the UK. Since 2009, the issuance of student visas has relied on Certificates of Acceptance for Studies (CAS) provided by UK universities (see Section 2), effectively making these institutions key stakeholders in the migration process. Over 90% of student visa applicants (holder of a CAS) are granted visas—in other words, universities act as key gatekeepers, effectively granting access to the UK territory in most cases. Consequently, student mobility offers a valuable perspective for understanding the role of non-state actors—in this case, universities and higher education providers—in shaping and implementing migration policies on the ground.

6.1.2 | Funding Matters

This paper sheds new light on the funding and mobility nexus. The administrative data analysed in this paper challenges the assertion that student mobility from low-income to high-income countries would be 'the result of prestigious higher education institutions handing out scholarships to students in lower developed countries to attract and retain talent' (Weber et al. 2023). Instead, we find that scholarships are of negligible importance when it comes to enabling student mobility to the UK, given that 90% of students do not benefit from scholarships. Furthermore, scholarships do not appear to retain talents. The low proportion of scholarship students from low-income countries suggest that student mobility might currently aggravate in-country inequalities (OECD 2017) by reinforcing the status of economic elites from low-income countries who can fund the studies of their children abroad, while most of their compatriots cannot. Considering students' contribution to the UK's higher education system and economy more broadly, awarding more scholarships to students from LMIC could benefit both the UK and the countries of origin. Indeed, the amounts awarded as scholarships are spent in the UK, contributing to the UK higher education sector and economy broadly. However, scholarship students are less likely to stay in the UK upon graduation, and more likely to go back and contribute potentially useful skills to their countries of origin.

6.1.3 | Youth From the Global South's Contribution to World Development

Adopting a global perspective—one that transcends nation states' specific interests—suggests a number of benefits from increased mobility of youth from the Global South. Indeed, student mobility is synonymous with the transfer of knowledge between the UK and the rest of the world—in particular China, India, Nigeria and Bangladesh as of today. Regardless of return rates, the literature has long established that foreign-educated individuals can contribute to the development of their countries of origin through various channels, including but not limited to: fostering innovation, transferring knowledge, expertise and know-how or developing transnational networks relevant to research and development in developing countries (Kapur and McHale 2005a, 2005b; Kapur 2010; Agrawal et al. 2011). Former international students can internalise social and political norms from their host countries and act as translators (Vari-Lavoisier 2016, 2020; Lacroix et al. 2016), relaying back democratic ideas and practices (Levitt 2001; Spilimbergo 2009) from their host to their home countries—regardless of where they settle. Student mobility has also been connected to a range of positive political outcomes, as it promotes mutual understanding and cooperation across borders (Lomer 2016).

Expanding upon this strand of research, this paper serves as an invitation to pay greater attention to the impact of economic constraints on both individual and institutional actors. Further research is needed, first, to clarify the sources of funding used by self-funded and scholarship students, respectively, and how this impacts their trajectories. More research is also required to understand who within a given country has access to scholarships and who does not. Next, examining the countries of origin of most self-funded students suggests that some may rely on informal loans or other sources of funding to facilitate their move to the UK. Given the differences highlighted in this paper, exploring sources of funding is crucial for understanding students' individual trajectories (e.g., stay rates) as well as the broader economic, political and scientific implications of student mobility for both countries of origin and destination.

7 | Conclusion

Student mobility is rapidly emerging as a major political, economic and social phenomenon with far-reaching implications for both sending and receiving regions. While student inflows have garnered significant attention, a critical gap remained in understanding the political economy underpinning students' long-term trajectories. This paper addresses this gap by leveraging comprehensive data that enables us to track international students over time.

To our knowledge, this study is the first to quantify the extent to which self-funded and scholarship international students contribute to both long-term (over a year) and settled (over 10 years) migration to the UK. Our analysis demonstrates that student mobility has evolved into a major entry pathway to the UK—with student visas outnumbering all the other visa categories. However, these migration flows are predominantly temporary: approximately 84% of international students leave the UK within 6 years of completing their studies. A minority remain in the UK after graduation. As of 2021, at least a quarter of all immigrants who have been in the UK for more than 10 years entered the country as students—making student migration comparable in scale to work and family migration.

Crucially, this paper explores significant variations in stay rates based on funding sources and countries of origin. Self-funded students, particularly those from lower-income nations, are more likely to remain in the UK post-graduation. The key contribution of this paper lies in identifying distinct mobility patterns between self-funded and scholarship students, providing critical insights into the complex interplay between economic resources, policy frameworks and migration decisions. It shows the need to account for economic and institutional constraints to improve our understanding and management of contemporary migration.

Decades of research in the brain drain, brain gain and brain circulation literature show that former expatriates can drive development in their home countries through diasporic ties, knowledge transfer and remittances. This paper refrains from making claims about the impact of student stay rates on sending countries' development. Instead, it argues that student mobility generates mutual benefits for both the UK and source countries. The UK accrues economic, scientific and cultural advantages from hosting international students, although this may lead to an increased dependency on international student inflows to sustain its higher education system. For students—particularly those from regions where access to high-quality higher education is scarce—studying in the UK can be transformative, enhancing their life opportunities and career trajectories, if not the life opportunities available in their countries of origin. Furthermore, human mobility, including student mobility, has historically fostered trade, innovation, intellectual collaboration and intercultural understanding. In this light, student mobility is not merely an academic or economic exchange but a fundamental contributor to international cooperation and global development.

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Conflicts of Interest

The author declares no conflicts of interest.

Data Availability Statement

The publicly available data can be downloaded on the Home Office website. The data obtained by submitting a Freedom of Information request is available upon request.

Peer Review

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/imig.70089.

Endnotes

[1] *Source:* Home Office data (VIS_DO1 for the year ending in December 2024) accessible at: https://assets.publishing.service.gov.uk/media/67bc8251d157fd4b79addd86/entry-clearance-visa-outcomes-datasets-dec-2024.xlsx. The author notes discrepancies between the Home Office datasets MJ_D01 and VIS_02 in terms of the number of visas issued each year. The Home Office has not responded to our request for comment. However, the overall trends remain consistent, with student visas being the most delivered category.

[2] See https://www.gov.uk/government/statistics/irregular-migration-to-the-uk-year-ending-june-2024.

[3] See https://www.gov.uk/student-visa.

[4] *Source:* https://data.un.org/Glossary.aspx?q=long-term%20migrant; https://publications.iom.int/system/files/pdf/iml_34_glossary.pdf.

[5] The following four categories in the country list have been dropped as the country of origin is unspecified: British overseas citizens, other and unknown, refugee and stateless.

[6] In 2021, while 3% of student visas were issued to EU nationals, 64% of student visas were delivered to Asian students and 21% to students from Sub-Saharan Africa, 20% to students from South Asia, 5% to students from Southeast and Central Asia, 3% to students from North America, 1% to students from Central and South America.

[7] EU students are excluded from the Home Office data and therefore from our analyses—see 'Data and Methods' (Section 4).

[8] See https://cscuk.fcdo.gov.uk/handbook/end-of-your-award/#content and https://www.chevening.org/wp-content/uploads/2023/12/Terms-and-conditions-scholarships.Nov22-1-1.pdf for Commonwealth and Chevening programmes, respectively.

[9] Including the categories 'Valid leave to remain' or 'Indefinite Leave to Remain.'

[10] See https://russellgroup.ac.uk/media/6092/russell-group_international-student-diversification_251022.pdf.

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Appendix A

Country-Year-Level Explanatory Variables

The economic, political and social contexts of home and host countries are captured by comparing the home country's characteristics to those of the UK. Economic opportunities are measured by the *GDP per capita (logged) ratio*, which represents the ratio of the natural logarithm of the home country's GDP per capita (constant in US dollars in 2015) to the logged GDP per capita of the UK. The *unemployment rate ratio* is used to measure economic insecurity, which signifies the ratio of the home country's unemployment rate to that of the UK.

Political context of home and host countries is quantified by the *liberal democracy ratio*, which captures the ratio of the home country's liberal democracy index to the UK's. The source of the data is the Varieties of Democracy version 12 dataset. This index reflects the presence of electoral democracy and the level of protection of individuals' and minorities' rights from the state and majority (Lührmann et al. 2019).

We measure social networks using the size of migrants and international students in the UK. *Migrant stock-to-population ratio (logged)* is measured by the natural logarithm of the ratio of the number of immigrants in the UK from the home country to the population of the home country. This measure serves as a proxy for the proportion of individuals from a particular country residing in the UK. While this approach has limitations—notably, it may underestimate the influence of large diasporas and overestimate the significance of smaller ones—it remains robust in capturing overall trends across countries. Moreover, its consistency across countries make it a valuable tool for examining the relationship between networks and stay rates.

International student to population ratio (logged) is measured by the natural logarithm of the ratio of the number of UK-bound international students from the home country to the home country's population.

Country-Level Explanatory Variables

We measure the historical connection between the home country and the UK using a binary measure indicating whether the country is a current member of the *Commonwealth*. Finally, we control for regional disparities in stay rates by including regional dummy variables for *Sub-Saharan Africa*, *Asia*, *Middle East and North Africa* and *Non-EU Europe*, with the *Western Hemisphere* serving as the reference.

Three-Level Modelling

This study employs three-level multilevel modelling to assess how the contexts of UK and home countries at country-year (Level 2) and country levels (Level 3) are linked to the stay rates of self-funded and scholarship-granted students at the country-year-cohort level (Level 1). The multilevel approach provides precise coefficient and standard errors by treating each level's variance independently (Snijders and Bosker 2011). This approach also offers a useful way to untangle the effects of age, period and cohort (APC) to resolve confounding effects of time trend (Yang and Land 2008). According to our data structure, the key control variables in the model are duration, year and arrival cohort (see below). As in the APC analysis, these three variables cause a model identification problem when they are perfectly correlated with each other, thus leading to spurious results of time-varying variables (Horowitz 2018). To account for the effects of duration, cohort and year, we include duration and cohort in the model as fixed effects by operationalising them with a different time scale: duration using a linear form and cohort using dummy variables for one-year intervals. We then estimate the effect of year by treating it as random effects combined with country groupings at Level 2 in the multilevel model. Consequently, this approach allows us to incorporate cross-national time-varying variables in the regression model. Furthermore, we treat country effect as Level-3 random effects to investigate the impact of time-invariant variables related to country characteristics on stay rates.

The three-level multilevel models in this analysis can be represented by the following equation:

$$y_{ijk} = b_0 + b_1 \text{duration}_{ijk} + b_2 \text{cohort}_{ijk} + b_{3\ldots7} x_{1\ldots5(j-1)k} + b_{8,9} z_{1,2k} + u_{0k} + u_{0jk} + e_{ijk} \quad \text{(A1)}$$

where y_{ijk} is the stay rate of self-funded or scholarship-granted students belonging to cohort i nested within country-year j in country k; duration_{ijk} is the duration of stay in years after arrival; cohort_{ijk} is a dummy variable for cohort (reference = 2006 cohort); $x_{1-5(j-1)k}$ are five country-year-level explanatory variables for the one-year lag of country-year j in country k; z_{1-2k} are two country-level explanatory variables for country k; u_{0k} is a Level-3 random effect; u_{0jk} is a Level-2 random effect; and e_{ijk} is a Level-1 random effect. Additionally, to check for omitted-variable bias at the country level, we conducted two-level multilevel modelling for country-year-cohorts nested within country-years, including country-fixed effects. The results were consistent with our findings from the three-level multilevel modelling, confirming our hypotheses.