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Geopolitics, asymmetries, coloniality, and epistemic justice: rethinking international education from Latin America

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Abstract

The internationalization of higher education, often portrayed as a process of cooperation and global openness, continues to reproduce the structural asymmetries of the world knowledge system. This study analyzes the relationship between geopolitics, coloniality, and epistemic justice from a Latin American perspective, integrating data on academic mobility, educational investment, and national policy models. The results show a strong concentration of international students in the “Global North”, a direct correlation between economic capacity and talent attraction, with a saturation threshold at ~USD 59,000 PPP, with exceptions such as Argentina and Cuba due to tuition-free public education, and the coexistence of three models of internationalization: talent recruitment, horizontal cooperation, and mixed approaches. The theoretical analysis, drawing on authors such as Mignolo, de Sousa Santos, and Walsh, calls for advancing toward a localized internationalization grounded in reciprocity and the recognition of diverse epistemologies. Latin America thus, emerges as a space of resistance and alternative thinking, capable of articulating alternatives for a more equitable and plural educational globalization, one that includes, in this process, the acceptance and transformation of its own tensions arising from the diverse educational and social realities that shape it.

Abstract in Spanish

La internacionalización de la educación superior, que a menudo es presentada como un proceso de cooperación y apertura global, continúa reproduciendo las asimetrías estructurales del sistema mundial del conocimiento. Este trabajo

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analiza la relación entre geopolítica, colonialidad y justicia epistémica desde una perspectiva latinoamericana, integrando datos sobre movilidad académica, gasto educativo y tipos de políticas nacionales. Los resultados muestran una fuerte concentración de estudiantes internacionales en el “Norte Global”, una correlación directa entre la capacidad económica y la atracción de talento, con un umbral de saturación en ~59.000 USD PPA, con excepciones como Argentina y Cuba por la gratuidad educativa, y la coexistencia de tres modelos de internacionalización: captación de talentos, cooperación horizontal y enfoques mixtos. El análisis teórico, apoyado en autores como Mignolo, de Sousa Santos y Walsh, propone avanzar hacia una internacionalización situada, basada en la reciprocidad y en el reconocimiento de epistemologías diversas. América Latina emerge así, como un espacio de resistencia y pensamiento crítico, capaz de articular alternativas para una globalización educativa más equitativa y plural, que incluye, en este proceso, la aceptación y la transformación de sus propias tensiones surgidas de las diversas realidades educativas y sociales que la conforman.

Keywords

Coloniality of knowledge; epistemic justice; geopolitics of knowledge; internationalization of higher education; Latin America

Editorial note

This article is part of the Plurilingual Special Issue of *Frontiers: The Interdisciplinary Journal of Study Abroad* on Voices from Latin America. The Spanish version of the article can be accessed [here](#).

1. Introduction

Over the last few decades, the internationalization of higher education has become established as a strategic pillar of university policies and global cooperation (De Wit & Altbach, 2021; Kehm & Teichler, 2007). On the surface, this process seeks to build an open, plural, and interconnected academic space, underpinned by the principles of mobility, exchange, and collaboration (De Wit & Altbach, 2021). However, behind this narrative of openness and universalism lie deep historical and epistemic asymmetries that reproduce the hierarchical structure of the global knowledge system (Altbach, 2004; Guzmán-Valenzuela et al., 2019; Shahjahan & Morgan, 2016).

These asymmetries also permeate the theoretical frameworks through which cultural diversity has been understood in international education. In this context, the contemporary debate among multiculturalism, functional interculturality, and critical interculturality reflects different ways of conceptualizing relationships among cultures and, more importantly, the

power inequalities that shape them. While multiculturalism emphasizes the coexistence of diversity, and functional interculturality promotes dialogue without necessarily questioning the underlying power relations, critical interculturality, developed from the Global South, seeks to make visible the historical, political, and epistemic asymmetries that configure intercultural encounters. From this perspective, international education finds in interculturality a pedagogical horizon that goes beyond the mere management of diversity to foster educational experiences grounded in critical dialogue and the co-construction of knowledge (Felitti & Rizzotti, 2018).

Understanding these tensions requires recognizing that international education has never constituted a neutral field, rather, it has functioned since its origins as a geopolitical instrument of power (Marginson, 2019; Trilokekar et al., 2020). The notion of geopolitics —understood in the classic sense of Escalona Ramos (as cited in Cuéllar Laureano, 2012, p. 75) as "the science and art or technique of applying knowledge of geographical, political, and historical factors, in reciprocal and joint action, for the political dominance of space"—sheds light on the strategic background that links education to disputes over cultural hegemony, ideological projection, and the control of human and, ultimately, economic capital (Marginson, 2019; Nye, 2004; Trilokekar et al., 2020). Throughout modern history, educational systems have not only molded citizens and professionals but have also served as tools for the expansion and legitimation of power (Mignolo, 2003; Shahjahan & Morgan, 2016).

During the 20th century, and particularly after World War II, educational cooperation policies and exchange programs became mechanisms of cultural diplomacy. Initiatives such as Fulbright, DAAD, and Erasmus, among many others, disseminated the values and interests of the sending powers under the ideal of academic exchange. Thus, international education became an essential component of what Nye (1990, 2004) conceptualized as "soft power": the ability to influence other countries through cultural appeal and intellectual values.

In the last decade of the past century, globalization and the knowledge economy consolidated a new paradigm. Internationalization ceased to be understood as a process of cooperation and became a competitive market of knowledge, where student mobility, talent recruitment, and scientific production became indicators of prestige (De Wit & Altbach, 2021; Kehm & Teichler, 2007).

Furthermore, international education has established itself as a field oriented toward the development of soft skills, especially those linked to the acquisition of intercultural competences. Analyzed from the perspective of

functional interculturality, its primary goal is to train global citizens capable of successfully integrating into the labor market and fostering productivity within diverse teams. However, this approach turns the acquisition of skills into a standard for measuring efficiency and the fulfillment of academic mobility objectives, reinforcing instrumentalist and ableist visions of education to the detriment of rights-based approaches. This tendency stands in tension with Sustainable Development Goal 4.7, which promotes an education that recognizes mutual understanding and respect for diversity as key elements while including internationalization among its priorities, yet it fails to consider the proper context of the profound differences between regions, countries, and cultures.

This neoliberal shift, described by Shahjahan and Morgan (2016) as the "fetishism of competition", standardized the idea that academic quality can be measured through universal standards, while simultaneously rendering invisible the structural conditions of inequality between countries and their institutions.

It is in this context that the colonality of knowledge, in the sense developed by Mignolo (2003, 2011) and Quijano (2024), continues to structure the geography of global knowledge. The centers of the "North" define the criteria for legitimacy, the languages of publication, and the epistemological frameworks, while universities in the "South" adopt these parameters in order to be recognized by the global system. As de Sousa Santos (2018) warns, this hierarchy produces a "monoculture of scientific reason" that renders invisible the plurality of knowledges and relegates non-Western epistemologies to a subordinated position.

Latin America constitutes a paradigmatic space for understanding and challenging these tensions. Historically embedded within the periphery of the world system, the region has been a recipient of educational models, languages, and academic policies that originated from the "North"; yet, it has also developed its own critical thought that seeks to redefine the terms of internationalization. Authors such as Dussel (1998), Guzmán-Valenzuela et al. (2019), and Torres (2008) have emphasized that the Latin American challenge is not merely to participate in academic globalization, but to do so from a position of intellectual agency and cognitive sovereignty.

In this sense, the book *Voices from the South: Decolonial Perspectives in International Education* (Rizzotti & Cruz-Feliciano, 2023) marks a turning point: it proposes reading internationalization from the voices, practices, and pedagogies of the Global South, not as a defensive reaction but as an affirmative epistemic proposal. From this perspective, decolonizing international

education implies recognizing that knowledge is not the heritage of a single region or culture, but rather a collective, situated, and plural construction.

Thus, Epistemic justice (Fricker, 2007; Santos, 2018; Walsh, 2009) emerges as a guiding principle for reorienting internationalization. It is not merely a matter of increasing participation or mobility, but rather transforming the conditions under which knowledge is produced and circulated. This implies making room for diverse epistemologies, incorporating critical perspectives into curricula, and fostering cooperation that privileges reciprocity over competition.

In the Latin American context, experiences that materialize this vision are beginning to take shape: regional university networks, South-South cooperation programs, and intercultural pedagogies that value local knowledges as a legitimate part of the global dialogue. These initiatives do not seek to isolate the region; rather, they aim to dispute the meanings of educational globalization, orienting internationalization toward a horizon of equity, mutual recognition, and cognitive sovereignty.

This article is situated within that line of inquiry. It proposes to examine the relationship between geopolitics, international education, and epistemic justice from a historical-political and Latin American perspective. Through a bibliographic, documentary, and empirical review, the study identifies the continuities and ruptures in internationalization policies, the power dynamics that sustain them, and the emerging alternatives that seek to build a more just, cooperative, and plural internationalization.

Furthermore, it introduces a comparative dimension based on indicators of net flow and standardized flow of student mobility, which allows for the empirical visualization of regional asymmetries and the various positions of the "Global South" within the world system of knowledge. These indicators, the symmetric net flow, which measures a country's relative mobility balance, and the global standardized flow, which compares its relative weight as both a receiver and a sender, offer an innovative metric for mapping the geopolitical hierarchies of knowledge.

2. Research questions and objectives

In operational terms, this research is guided by the following questions: How are international student mobility flows (inbound and outbound) distributed globally during the 2014–2019 period, and what patterns of regional asymmetry are evident, considering 2020 as a reference point for disruption? What relationship exists between inbound academic mobility and economic capacity variables (GDP per capita in PPP and public investment in education),

and can a threshold be identified beyond which this relationship changes or stabilizes? What relative positions do countries occupy when compared through symmetric net flow and global standardized flow, and how are these positions expressed in terms of geopolitical hierarchies of knowledge? To what extent do the types of internationalization (talent attraction, horizontal internationalization, and mixed models) align with, or come into tension with, these structural positions?

The overarching goal is to analyze the internationalization of higher education as a geopolitical phenomenon shaped by historical and epistemic asymmetries, integrating documentary evidence and a comparative-empirical analysis of student mobility. The research is further guided by four specific objectives: **(1)** to describe the global distribution of inbound and outbound international students (2014–2019 averages) and incorporate 2020 as a reference point for disruption; **(2)** to construct and apply indicators of symmetric net flow and global standardized flow to compare countries and regions; **(3)** to explore the relationship between inbound mobility, GDP per capita (PPP), and public investment in education, including the estimation of a breakpoint through segmented regression; and **(4)** to propose an analytical typology of internationalization policies (talent attraction, horizontal internationalization, mixed models) and discuss their correspondence with structural positions within the geopolitics of knowledge.

We write from Latin America, combining trajectories in research and management within university internationalization. This locus of enunciation, situated in the region's public institutions and in cooperation networks with actors from the Global North, guides the article's critical approach: the aim is not to dismiss internationalization itself, but to make explicit the material, linguistic, and symbolic conditions that organize the circulation of knowledge and mobility, and to open the discussion toward more reciprocal and epistemically just alternatives.

3. Materials and methods

3.1. Data sources

The analyses were based primarily on statistical series from the UNESCO Institute for Statistics (UIS), redistributed through the World Bank's EdStats/Data360 platform (2024), referring to the 2014–2019 period, prior to the impact of the pandemic. This time frame was adopted to ensure temporal comparability and to avoid the distortions caused by the 2020–2021 health crisis. Nonetheless, values corresponding to 2020 were included as a specific

reference point for the pandemic's disruption of global mobility, given that the World Bank's most recent records extend up to 2023.

The main variables used were:

- (i) Inbound and outbound international students, expressed as the total number of non-resident tertiary students (indicators UIS.MS.56 and UIS.MS.57).
- (ii) Gross Domestic Product per capita (PPP, international \$), indicator NY.GDP.PCAP.PP.CD.
- (iii) Public investment in education (% of GDP), indicator SE.XPD.TOTL.GD.ZS.
- (iv) Regional and typological classification of countries, developed based on the World Bank's regional database and the conceptual categorization established in this work (talent attraction, horizontal cooperation, mixed model). The complete list of countries with their regional classification and their typological category according to symmetric net flow is included in the appendix.

Data on inbound students for Mexico were obtained directly from the UIS Data Browser (UNESCO Institute for Statistics), since this country is not included in the World Bank's aggregated EdStats dataset used for the rest of the sample. The available years within the 2014-2019 period were averaged (2015, 2016, 2017, 2018, and 2019; no data available for 2014). It should be noted that the value corresponding to 2018 (7,223) shows an abrupt drop relative to the immediately preceding and following years (25,125 in 2017; 33,271 in 2019), with no methodological note from the source explaining this variation (possibly associated with partial reporting coverage by the country that year). The value was kept as reported by the primary source, without manual correction, in order to preserve the integrity of the original data. Furthermore, a complementary analysis was incorporated to explore the relationship between economic variables and international academic mobility. Specifically, correlations between GDP per capita and the number of inbound students were examined, as well as between public investment in education (% of GDP) and international mobility. Finally, a segmented regression model (piecewise regression) was applied to identify a potential breakpoint (threshold) in GDP per capita beyond which the relationship with mobility changes significantly, thereby estimating a threshold associated with greater attraction capacity.

3.2. Processing and analysis

The data were integrated and processed in R (v4.4.0) using the packages *readxl*, *dplyr*, *forcats*, *ggplot2*, and *stringr*. Country names and ISO3 codes were normalized, and derived mobility indicators were calculated:

Symmetric net flow (*net_flow_sym*), calculated as

$$(\text{Inbound} + \text{Outbound} - \text{Inbound} - \text{Outbound}) \times 100$$

which expresses the relative mobility balance for each country, bounded between -100 (pure sender) and +100 (pure receiver).

Global standardized flow, calculated as

$$\text{GlobalStandardizedFlow} = \text{Inboundstd} - \text{Outboundstd}$$

which expresses between each country's proportion of inbound students relative to the world total and the equivalent proportion of outbound students.

This index allows for the comparison of relative magnitudes regardless of the absolute size of the flows and enables the detection of global asymmetry patterns.

Additionally, bivariate correlations (Pearson and Spearman) were estimated between the economic variables and mobility flows. The segmented model was fitted using the *segmented* package, employing the total number of inbound students as the dependent variable and GDP per capita (PPP) as the explanatory variable. This model allowed for the determination of the breakpoint and the slopes before and after the threshold, thereby identifying the economic income range associated with a higher attraction capacity.

Both indicators were calculated in R using *ad hoc* scripts, and the results were represented in regional graphs (Figures 9 and 10) showing the distribution of symmetric net flow and standardized flow by country and region.

3.3. Classification criteria

The typological categories were defined through the integration of documentary analysis and empirical evidence. In the first stage, national internationalization policies and bilateral or multilateral cooperation programs, were reviewed to identify predominant institutional orientations.

In a second stage, this classification was cross-referenced with the economic and mobility results (symmetric net flows and standardized flows),

which allowed for the adjustment of categories based on the observed structural patterns. In this way, countries were grouped according to three predominant models:

Talent Attraction: Characteristic of economies with a mobility surplus and high concentration of GDP per capita;

Horizontal Internationalization: Associated with balanced or deficit flows and strategies based on academic cooperation; and

Mixed Model: Combining attraction policies with regional or multilateral integration mechanisms.

This integrated classification combines normative and empirical criteria, allowing for the contextualization of national internationalization strategies within the economic and geopolitical structure of the global knowledge system.

The reference period for the comparative analysis was 2014–2019. The year 2020 was included only as a point of contrast to represent the pandemic-related disruption, ensuring that this shock did not distort the characterization of structural mobility patterns. Countries without comparable information were represented in a neutral color, with no imputation of values.

4. Results

The processing of data from international sources allowed for the identification of clear patterns in the global distribution of international students, educational investment, and the internationalization models adopted by countries.

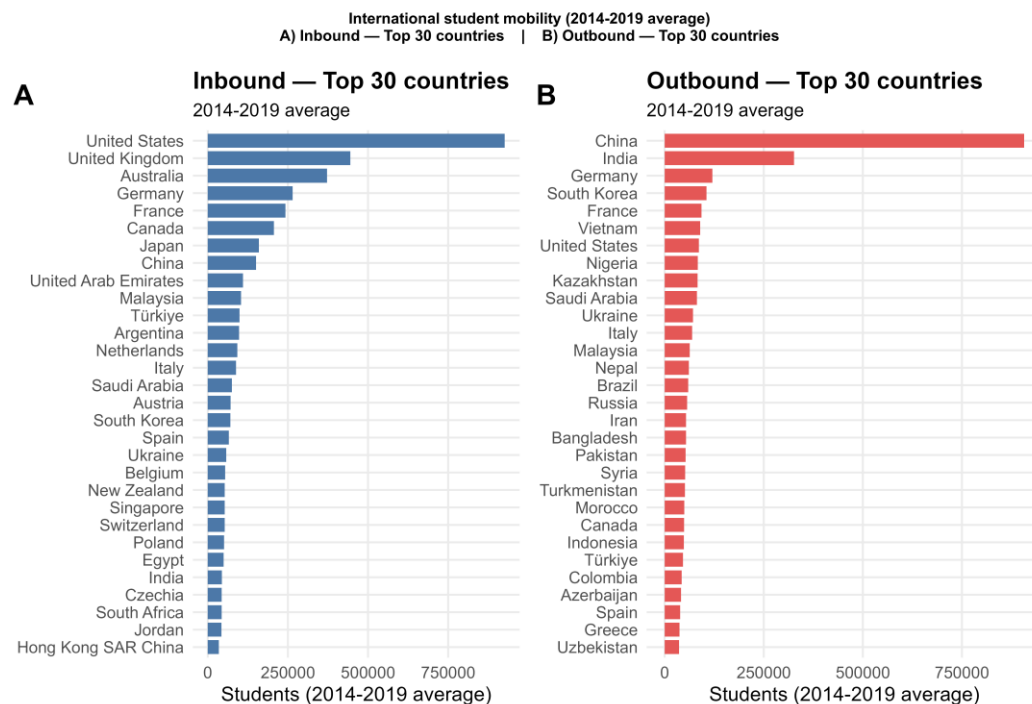
4.1. Global distribution of international students

For the primary study period (2014–2019), the data reflect a structural concentration of academic mobility. Figure (1), which presents the averages for this period, identifies the United States, the United Kingdom, Canada, Australia, Germany, and France as the main destinations; together, they account for approximately 50% of the global total of mobile students.

Among Asian countries, Japan is the leading regional recipient (approximately 159,700 students), followed by China and South Korea, with values of 150,900 and 70,500, respectively. In Latin America, Argentina was the only country in the region among the top thirty global recipients worldwide, with an average of approximately 97,500 inbound students. Brazil (20,400), Mexico (17,700; see methodological note on data quality, Section 3.1), and Chile (5,400) recorded considerably lower values, outside. In Africa, South Africa fell within the same main group, with approximately 43,200 inbound students.

FIGURE (1)

INTERNATIONAL HIGHER EDUCATION STUDENT MOBILITY (AVERAGE 2014–2019)



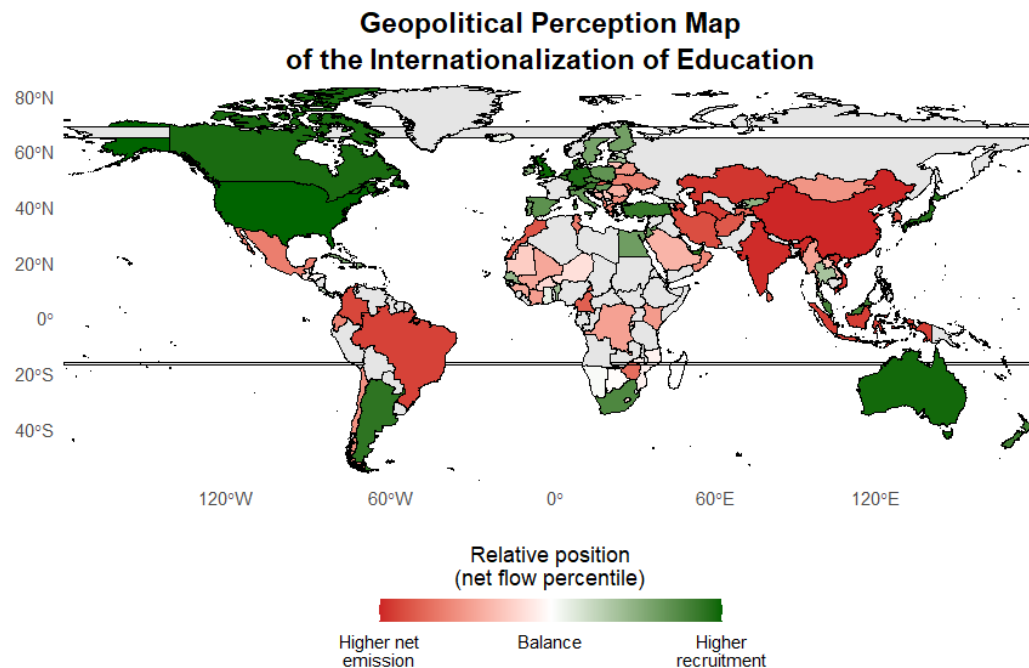
THE FIGURE PRESENTS THE TOP THIRTY COUNTRIES WITH THE HIGHEST INTERNATIONAL STUDENT MOBILITY, DIFFERENTIATING BETWEEN RECEIVING COUNTRIES (A) AND SENDING COUNTRIES (B). PANEL A SHOWS THE DESTINATIONS THAT CONCENTRATE THE LARGEST NUMBER OF INBOUND INTERNATIONAL STUDENTS, WHILE PANEL B REPRESENTS THE COUNTRIES OF ORIGIN WITH THE HIGHEST NUMBER OF OUTBOUND STUDENTS. THE DATA REFLECT ANNUAL AVERAGES FOR THE 2014–2019 PERIOD, ACCORDING TO WORLD BANK STATISTICS.

SOURCE: OWN ELABORATION BASED ON WORLD BANK DATA (WORLD DEVELOPMENT INDICATORS).

The global distribution map (Figure 2) shows that student flow follows a predominant South–North orientation, with the majority of mobility directed toward North America, Western Europe, and Oceania, while the regions of the "Global South" remain as sending areas or areas with limited receiving capacity, except Argentina.

FIGURE (2)

GEOPOLITICAL MAP OF INTERNATIONALIZATION PERCEPTION IN HIGHER EDUCATION



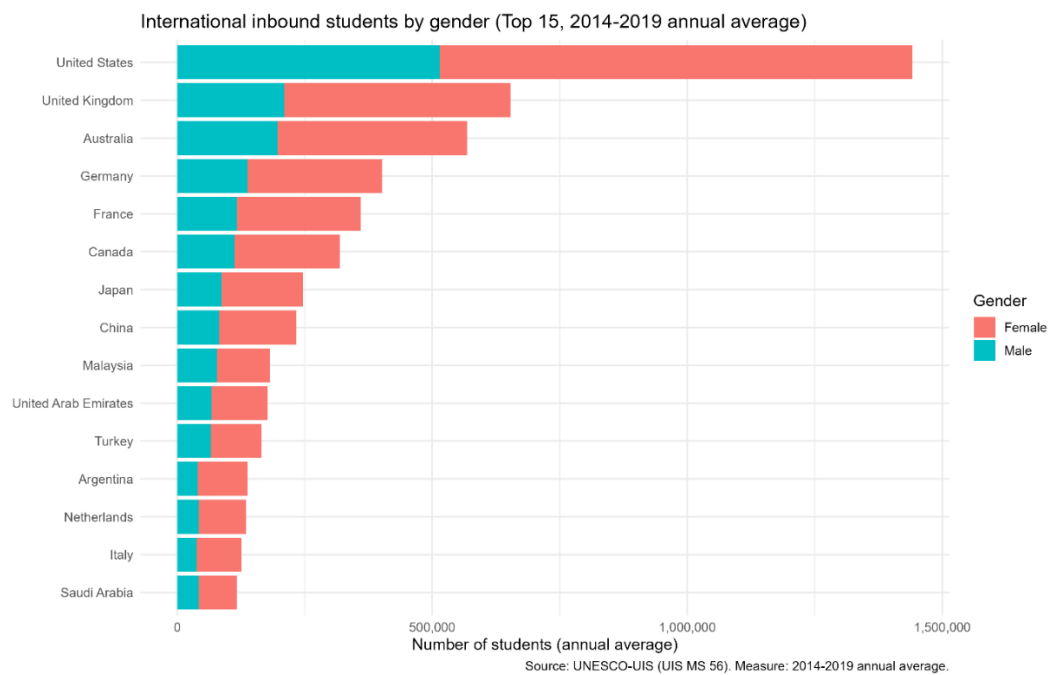
COUNTRY'S RELATIVE POSITION IN THE GLOBAL DISTRIBUTION OF NET STUDENT MOBILITY FLOW (NET_FLOW_ABS), EXPRESSED AS A PERCENTILE RATHER THAN AS A RAW VALUE, SO THAT EXTREME CASES (UNITED STATES, CHINA) DO NOT VISUALLY COMPRESS THE SCALE FOR THE REST OF THE COUNTRIES. GREEN TONES INDICATE GREATER RELATIVE RECRUITMENT OF INTERNATIONAL STUDENTS; RED TONES REFLECT GREATER RELATIVE NET EMISSION, ASSOCIATED WITH A PREDOMINANCE OF OUTBOUND STUDENTS. LIGHT TONES CORRESPOND TO POSITIONS CLOSE TO EQUILIBRIUM BETWEEN INBOUND AND OUTBOUND MOBILITY. THE COLOR CODING MATCHES THAT USED IN FIGURE 9.

SOURCE: OWN ELABORATION BASED ON TABLA_CLASIFICACION2.XLSX AND WORLD BANK DATA.

Figure (3) disaggregates this information by gender for the 2014–2019 period, showing a relatively balanced distribution with a slight female overrepresentation in most of the main receiving countries.

FIGURE (3)

INBOUND INTERNATIONAL STUDENTS BY GENDER (TOP 15, ANNUAL AVERAGE 2014–2019)



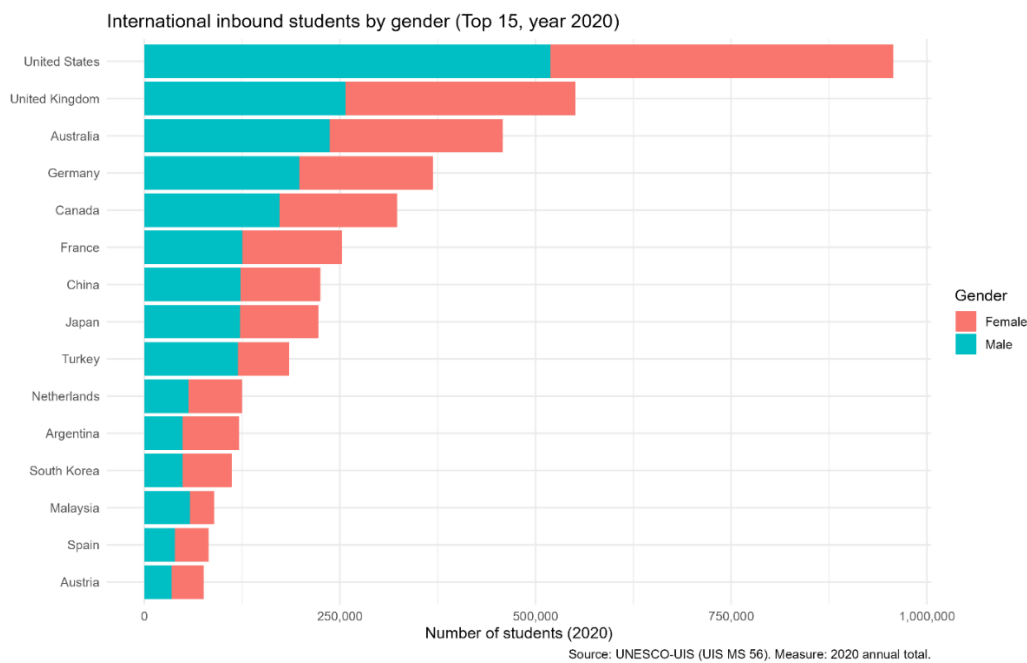
STACKED BARS BY COUNTRY WITH DISAGGREGATION OF FEMALE AND MALE STUDENTS. MEASURE: ANNUAL AVERAGE FOR THE 2014–2019 PERIOD BASED ON INBOUND INTERNATIONAL STUDENT RECORDS REPORTED TO UNESCO-UIS. SELECTION CRITERIA: THE 15 COUNTRIES WITH THE HIGHEST ANNUAL AVERAGE OF INBOUND STUDENTS. COUNTRIES INCLUDED (FROM HIGHEST TO LOWEST): UNITED STATES; UNITED KINGDOM; AUSTRALIA; GERMANY; FRANCE; CANADA; JAPAN; CHINA; UNITED ARAB EMIRATES; MALAYSIA; TURKEY; ARGENTINA; NETHERLANDS; ITALY; SAUDI ARABIA.

SOURCE: UNESCO-UIS (UIS.MS.56).

As a reference for the pandemic disruption, the 2020 data (Figure 4) reveal a shift in this pattern, with a higher proportion of male students in international mobility; this suggests a differential impact of the crisis by gender, along with the previously mentioned general reduction in the total number of students. This shift in gender distribution recorded in 2020 marks a turning point in historical international mobility trends, possibly linked to the differential effects of the pandemic.

FIGURE (4)

INBOUND INTERNATIONAL STUDENTS BY GENDER (TOP 15, 2020)



STACKED BARS BY COUNTRY WITH DISAGGREGATION OF FEMALE AND MALE STUDENTS. MEASURE: ANNUAL TOTAL FOR 2020 BASED ON INBOUND INTERNATIONAL STUDENT RECORDS REPORTED TO UNESCO-UIS. SELECTION CRITERIA: THE 15 COUNTRIES WITH THE HIGHEST ANNUAL TOTAL OF INBOUND STUDENTS. COUNTRIES INCLUDED (FROM HIGHEST TO LOWEST): UNITED STATES; UNITED KINGDOM; AUSTRALIA; GERMANY; CANADA; FRANCE; CHINA; JAPAN; ARGENTINA; NETHERLANDS; TURKEY; SOUTH KOREA; SPAIN; AUSTRIA; MALAYSIA.

SOURCE: UNESCO-UIS (UIS.MS.56).

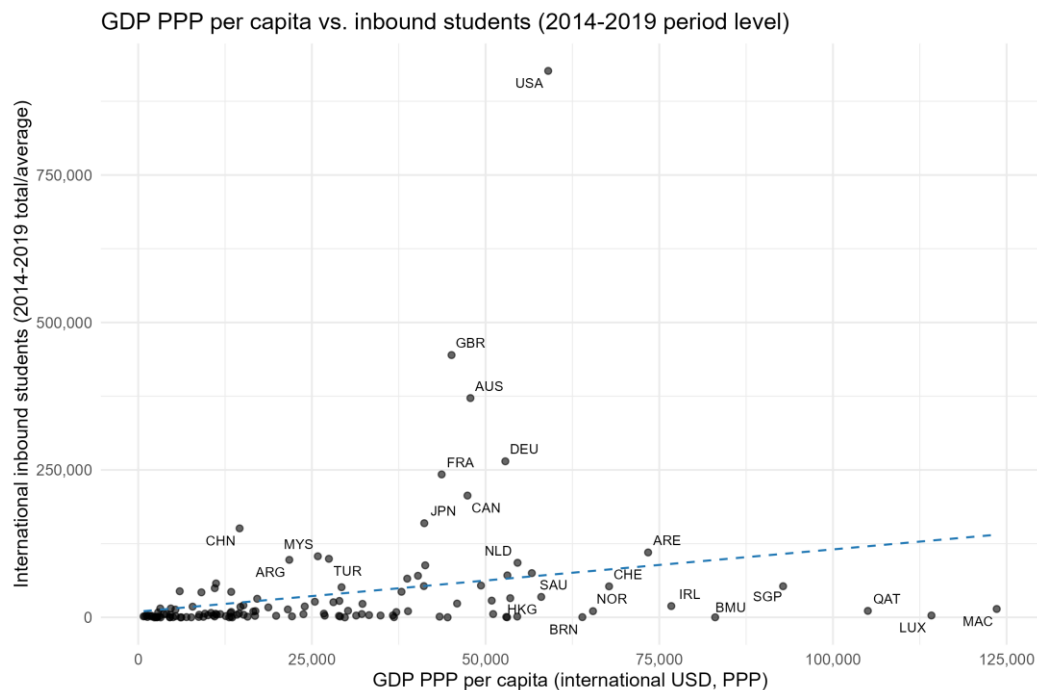
4.2. Investment in education and macroeconomic context

The analysis of macroeconomic series for the 2014–2019 period shows a positive and significant association between GDP per capita (PPP) and inbound academic mobility ($r = 0.24$, $p = 0.007$; $\rho = 0.44$, $p < 0.001$), confirming that the level of national wealth is linked to a higher capacity to attract international students (Figure 5). In contrast, the 2020 data (Figure 6) shows an overall reduction in international mobility and a greater dispersion of values, reflecting the differential impact of the pandemic on academic flows. Conversely, the relationship between public investment in education (% of GDP) and mobility proved to be weak and only marginally significant ($r = 0.09$, $p = 0.35$; $\rho = 0.20$, $p = 0.027$), indicating that relative budgetary effort does not guarantee higher academic recruitment (Figure 7). These results show that while national economic development is clearly associated with attraction capacity, the volume of educational investment does not maintain an equivalent linear relationship. In other words, variations in relative educational investment do not necessarily translate into greater international

mobility, suggesting that the capacity to attract students depends more on the general economic structure and the geopolitical positioning of countries than on the percentage of GDP allocated to education.

FIGURE (5)

RELATIONSHIP BETWEEN GDP PER CAPITA (PPP, INTERNATIONAL US\$) AND INBOUND INTERNATIONAL STUDENTS (AVERAGE FOR THE 2014–2019 PERIOD)



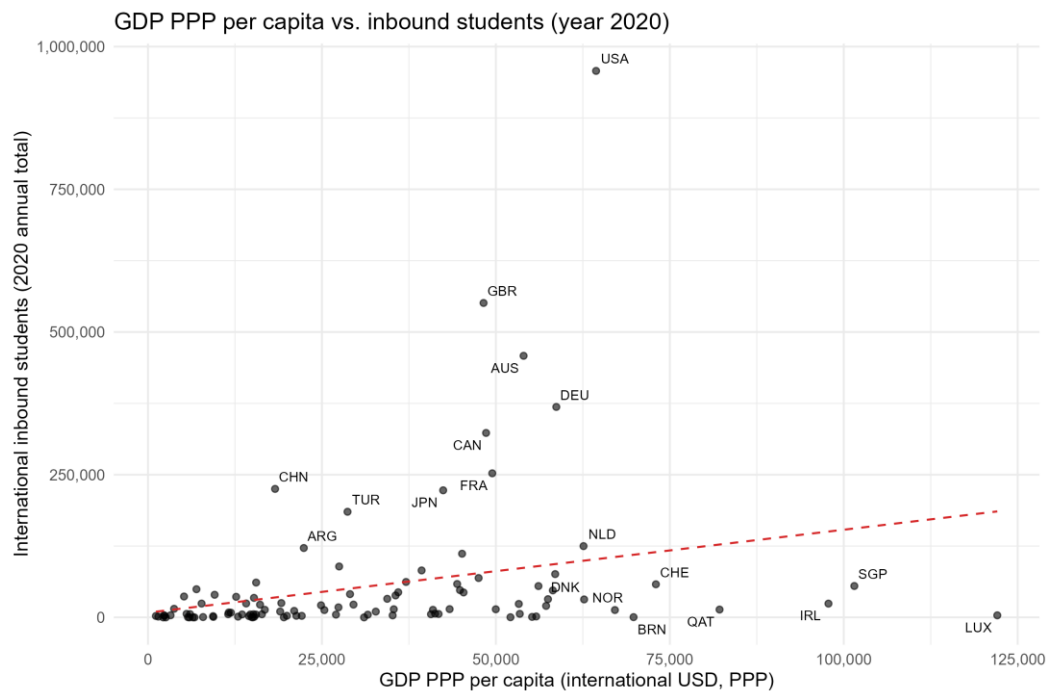
LABELS IDENTIFY COUNTRIES SITUATED IN THE TOP DECILE (P90) OF GDP PER CAPITA OR THE NUMBER OF INBOUND STUDENTS. DASHED LINE: LINEAR FIT (OLS).

SOURCE: OWN ELABORATION BASED ON THE WORLD BANK (INDICATOR NY.GDP.PCAP.PP.CD) AND UNESCO-UIS (INDICATOR UIS.MS.56).

ISO-3 CODES: ARE–UNITED ARAB EMIRATES; ARG–ARGENTINA; AUS–AUSTRALIA; BMU–BERMUDA; BRN–BRUNEI; CAN–CANADA; CHE–SWITZERLAND; CHN–CHINA; DEU–GERMANY; FRA–FRANCE; GBR–UNITED KINGDOM; HKG–HONG KONG SAR CHINA; IRL–IRELAND; JPN–JAPAN; LUX–LUXEMBOURG; MAC–MACAO SAR CHINA; MYS–MALAYSIA; NLD–NETHERLANDS; NOR–NORWAY; QAT–QATAR; SAU–SAUDI ARABIA; SGP–SINGAPORE; TUR–TURKEY; USA–UNITED STATES.

FIGURE (6)

GDP PER CAPITA (PPP, INTERNATIONAL US\$) VS. INBOUND INTERNATIONAL STUDENTS (2020)



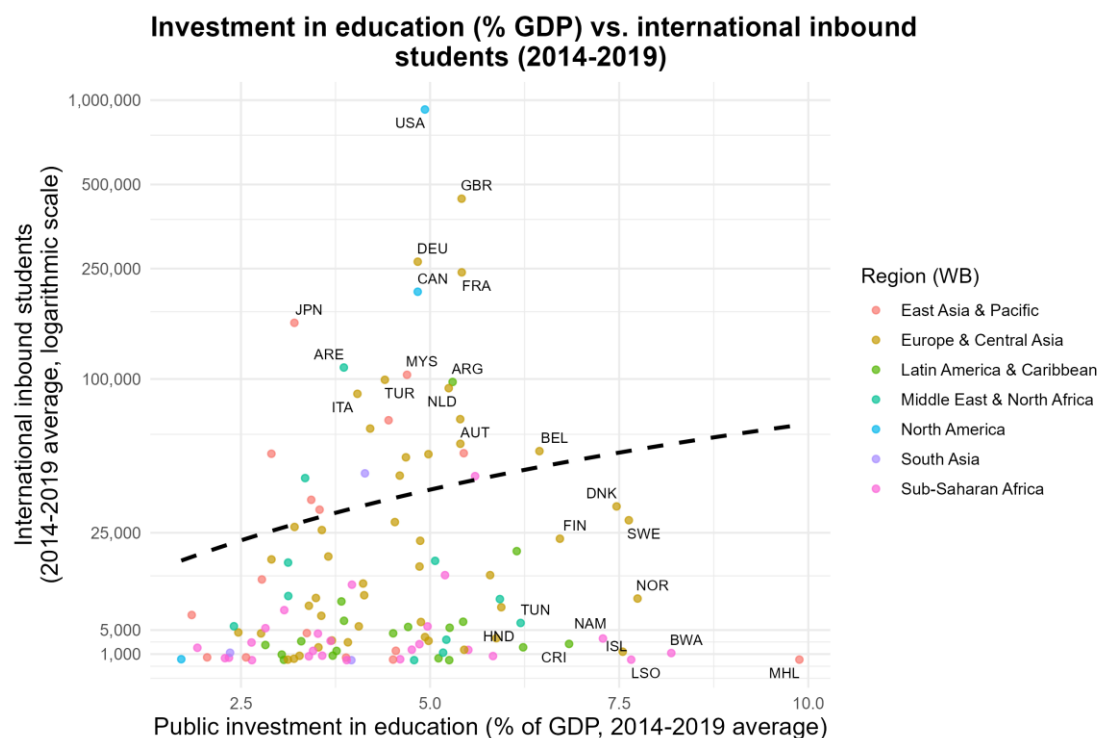
LABELS IDENTIFY COUNTRIES IN THE TOP DECILE (P90). DASHED LINE: LINEAR FIT (OLS).

SOURCE: WORLD BANK (NY.GDP.PCAP.PP.CD) AND UNESCO-UIS (UIS.MS.56).

ISO-3 CODES: ARG-ARGENTINA; AUS-AUSTRALIA; BRN-BRUNEI; CAN-CANADA; CHE-SWITZERLAND; CHN-CHINA; DEU-GERMANY; DNK-DENMARK; FRA-FRANCE; GBR-UNITED KINGDOM; IRL-IRELAND; JPN-JAPAN; LUX-LUXEMBOURG; NLD-NETHERLANDS; NOR-NORWAY; QAT-QATAR; SGP-SINGAPORE; TUR-TURKEY; USA-UNITED STATES.

FIGURE (7)

RELATIONSHIP BETWEEN PUBLIC INVESTMENT IN EDUCATION (% OF GDP) AND INBOUND INTERNATIONAL STUDENTS (AVERAGE FOR THE 2014–2019 PERIOD)



EACH POINT REPRESENTS A COUNTRY, COLORED ACCORDING TO ITS GEOGRAPHIC REGION (WORLD BANK CLASSIFICATION). THE INBOUND-STUDENT AXIS IS SHOWN ON A LOGARITHMIC SCALE TO PREVENT EXTREME VALUES (UNITED STATES, UNITED KINGDOM) FROM VISUALLY COMPRESSING THE DISTRIBUTION OF THE REST OF THE COUNTRIES. DASHED LINE: LINEAR FIT (OLS).

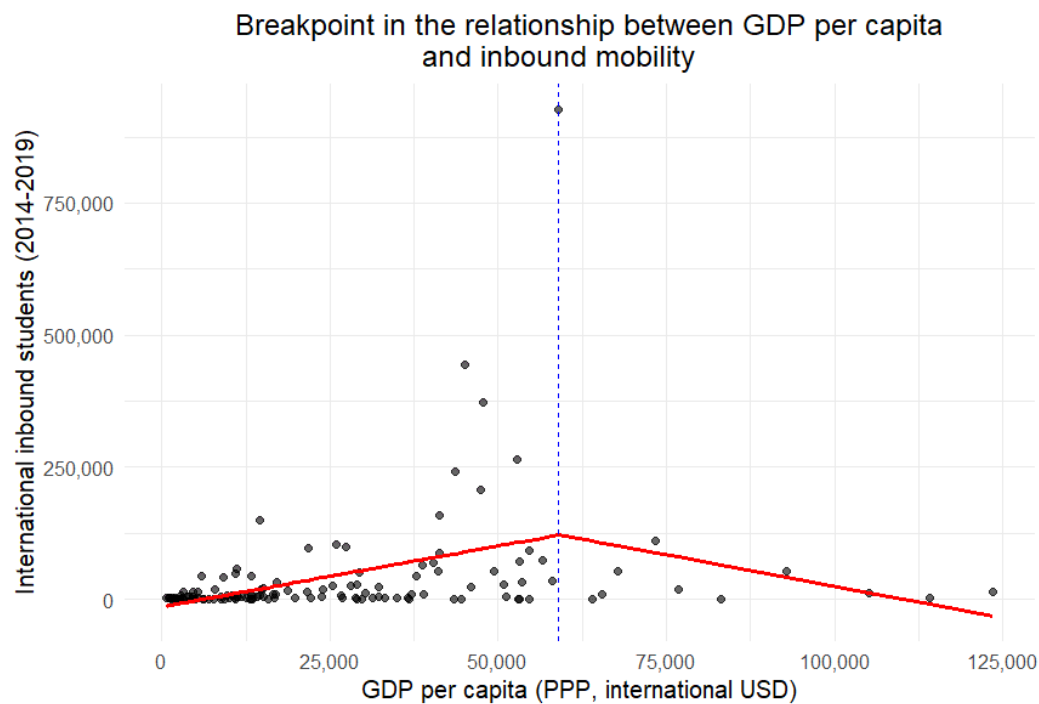
SOURCE: OWN ELABORATION BASED ON THE WORLD BANK (INDICATORS SE.XPD.TOTL.GD.ZS AND UIS.MS.56).

NOTE: THE LINEAR CORRELATION BETWEEN BOTH VARIABLES WAS WEAK ($R = 0.09$, $p = 0.35$), WHILE THE NON-PARAMETRIC CORRELATION ($\rho = 0.20$, $p = 0.027$) SUGGESTS A VERY SLIGHT AND NON-LINEAR POSITIVE RELATIONSHIP BETWEEN EDUCATIONAL INVESTMENT AND INTERNATIONAL STUDENT ATTRACTION.

The segmented model applied to the relationship between GDP per capita and inbound students for the 2014–2019 period identified a breakpoint around 59,000 USD PPP per capita ($\pm 12,000$), beyond which the slope stabilizes, suggesting the existence of an optimal level of mobility in higher-income economies (Figure 8). Below this threshold, the relationship was positive and significant ($\beta_1 = 3.49$, $p < 0.001$), whereas above it, it was possible to see a stabilization trend ($\beta_2 = -3.61$). This pattern reflects a possible maturity effect or a reach in geopolitical attraction objectives, where additional economic growth no longer necessarily translates into a proportional increase in international mobility.

FIGURE (8)

BREAKPOINT IN THE RELATIONSHIP BETWEEN GDP PER CAPITA (PPP, INTERNATIONAL US\$) AND INBOUND INTERNATIONAL STUDENTS (AVERAGE FOR THE 2014–2019 PERIOD)



THE RED LINE REPRESENTS THE MODEL FITTED USING PIECEWISE REGRESSION, AND THE DASHED BLUE LINE MARKS THE ESTIMATED BREAKPOINT (~59,000 USD PPP PER CAPITA; $\pm 12,000$).

SOURCE: OWN ELABORATION BASED ON THE WORLD BANK (INDICATORS NY.GDP.PCAP.PP.CD AND UIS.MS.56).

NOTE: BELOW THE THRESHOLD, THE RELATIONSHIP WAS POSITIVE AND SIGNIFICANT ($b1 = 3.49$, $p < 0.001$), WHILE ABOVE IT, THE SLOPE STABILIZES ($b2 = -3.61$), SUGGESTING A MATURITY EFFECT IN THE MOBILITY LEVELS OF HIGHER-INCOME COUNTRIES.

Overall, the comparison between educational investment, income level, and mobility reveals an unequal structure: countries with higher GDP per capita consolidate their attraction capacity until reaching a saturation point, while lower-income countries maintain a more direct relationship between economic growth and mobility. This dynamic reinforces the idea of structural asymmetries and differentiated maturity among regions within the global higher education system.

4.3. Types of internationalization

The typological map that classifies countries according to their predominant type of internationalization (Figures 9 and 10) distinguishes three main modalities:

1. **Talent Attraction:** includes 42 countries with active policies for attracting foreign students (among them, the United States, the United

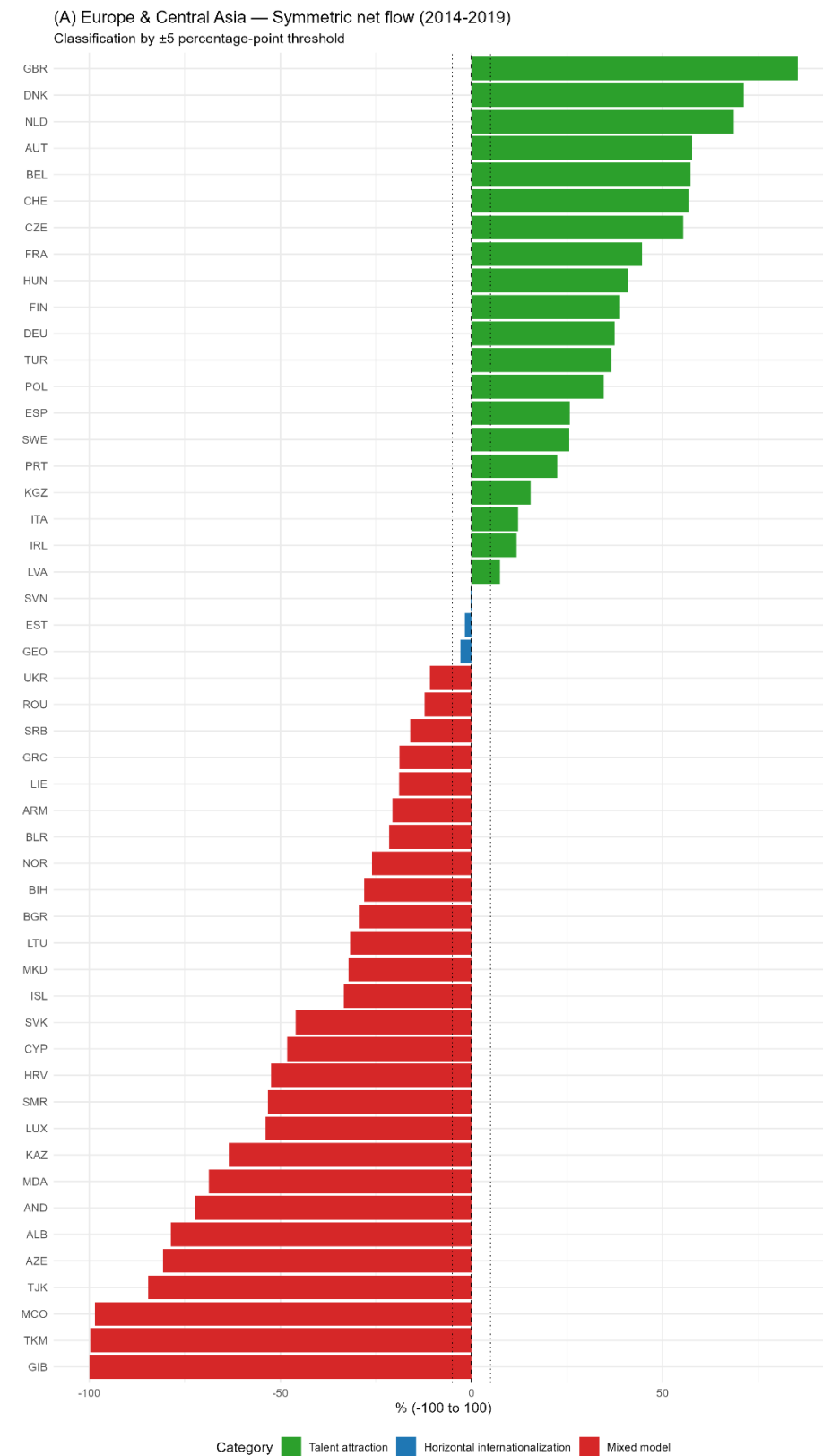
Kingdom, Canada, Germany, France, Japan, Australia, and Argentina; as well as Spain, Italy, Cuba, and South Africa).

2. **Horizontal Internationalization:** groups 11 countries (for example, Costa Rica, Ghana, Thailand, Bahrain, and Panama), characterized by a relatively balanced flow between inbound and outbound students.
3. **Mixed Model:** comprises 79 countries, including China, India, Chile, Brazil, Colombia, and Mexico, which combine talent-attraction strategies with regional or multilateral cooperation initiatives.

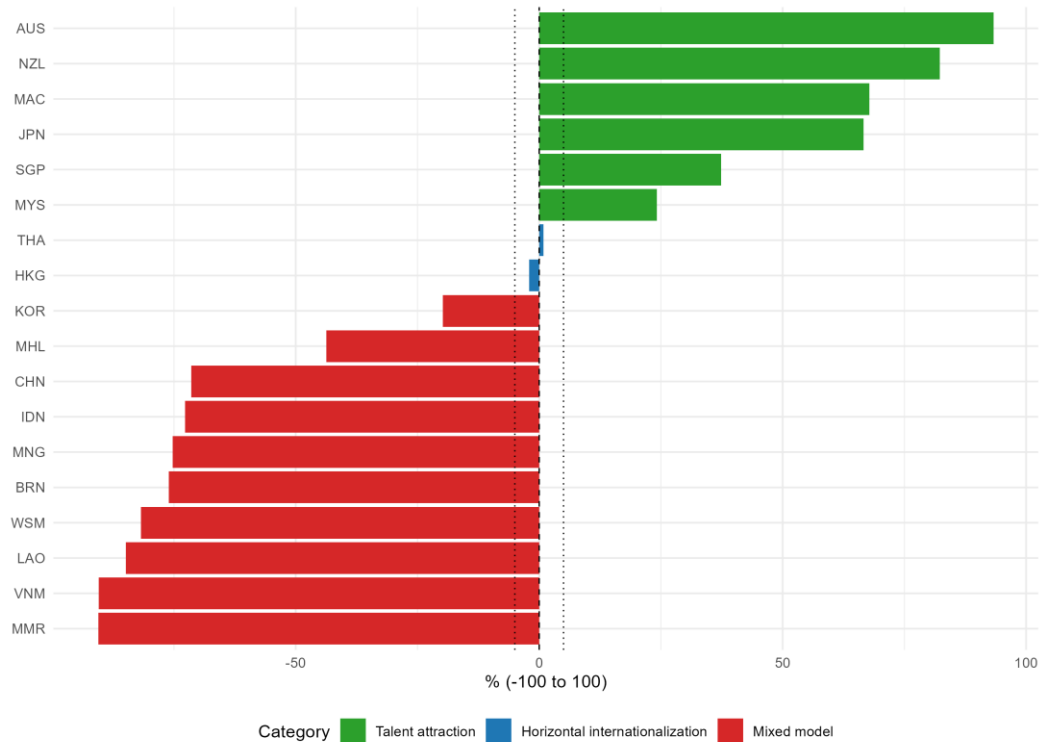
Mexico's typological classification is robust to the value observed in 2018 (see methodological note in 3.1): excluding that year from the average, the symmetric net flow would be -22.9% instead of -29.3%, without this changing its categorization as "Mixed Model" under the ± 5 percentage point threshold adopted in this study

FIGURE (9)

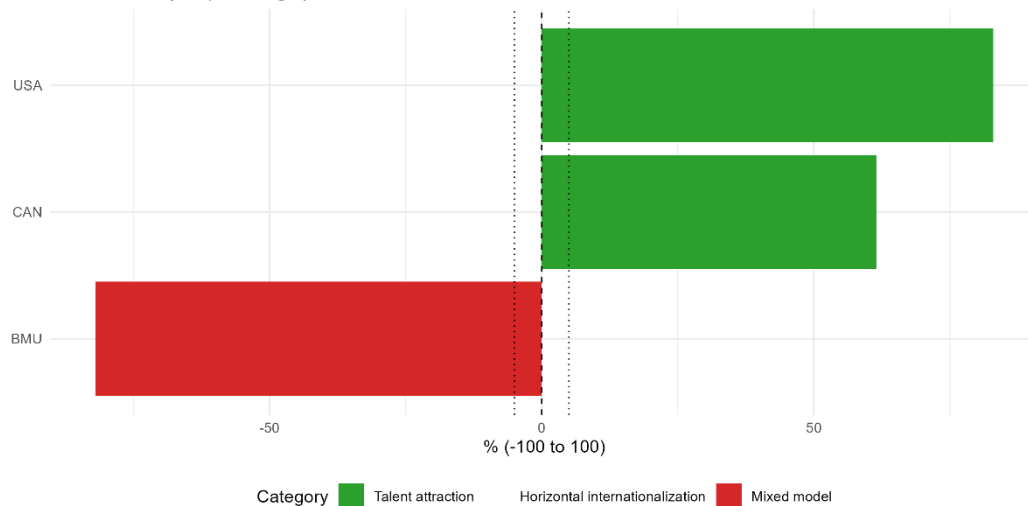
((A) EUROPE & CENTRAL ASIA; (B) EAST ASIA & PACIFIC; (C) NORTH AMERICA; (D) LATIN AMERICA & CARIBBEAN; (E) MIDDLE EAST & NORTH AFRICA; (F) SUB-SAHARAN AFRICA; (G) SOUTH ASIA). SYMMETRIC NET FLOW OF INTERNATIONAL STUDENTS BY REGION (2014–2019 AVERAGES)



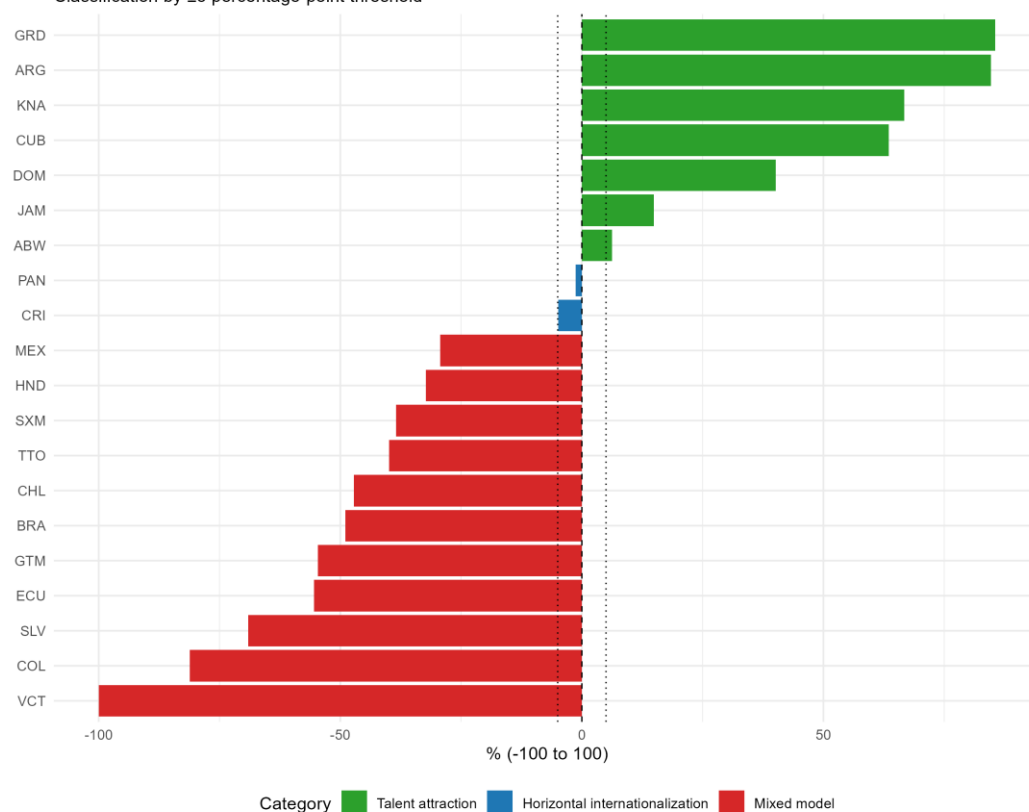
(B) East Asia & Pacific — Symmetric net flow (2014-2019)

Classification by ± 5 percentage-point threshold

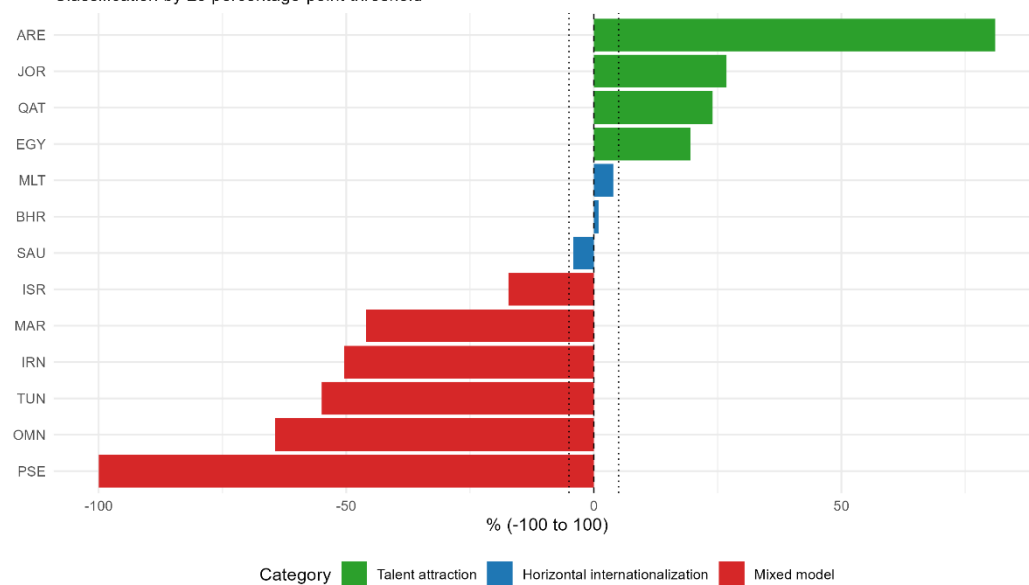
(C) North America — Symmetric net flow (2014-2019)

Classification by ± 5 percentage-point threshold

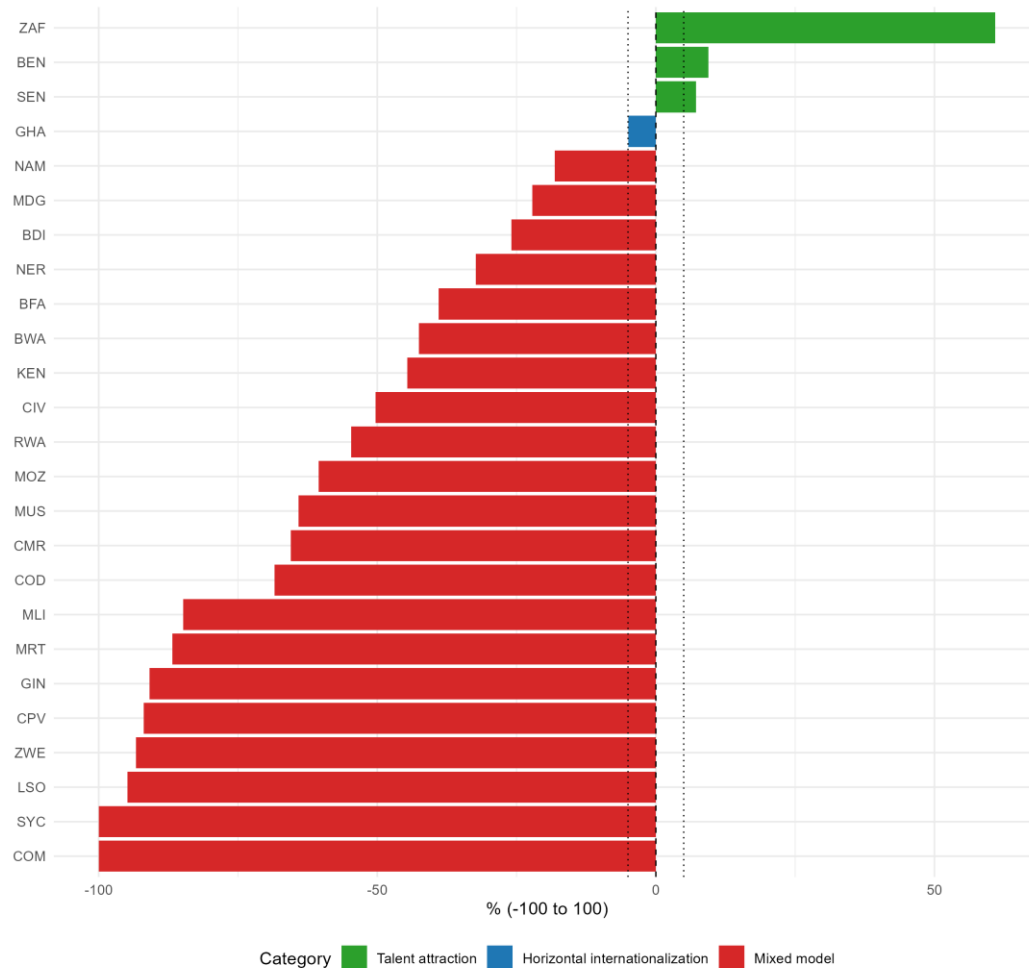
(D) Latin America & Caribbean — Symmetric net flow (2014-2019)

Classification by ± 5 percentage-point threshold

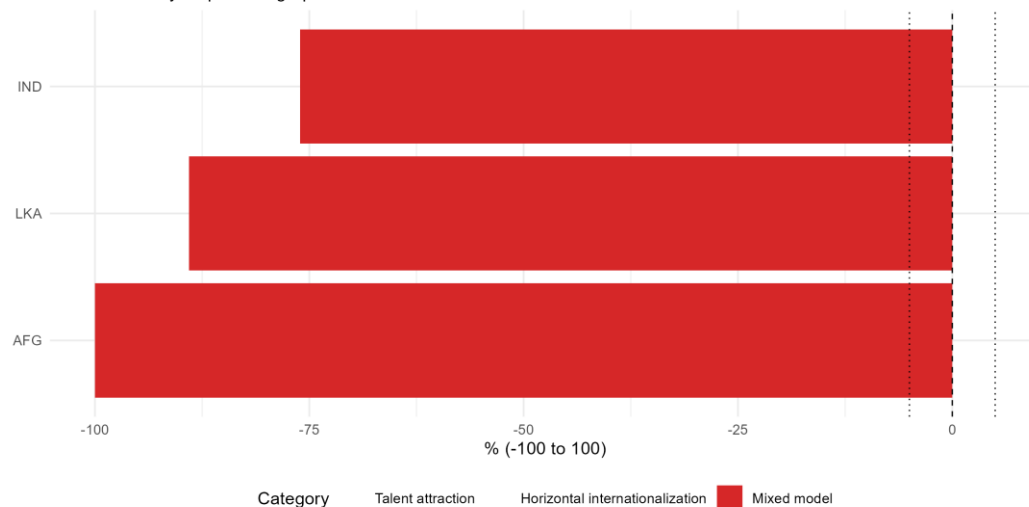
(E) Middle East & North Africa — Symmetric net flow (2014-2019)

Classification by ± 5 percentage-point threshold

(F) Sub-Saharan Africa — Symmetric net flow (2014-2019)

Classification by ± 5 percentage-point threshold

(G) South Asia — Symmetric net flow (2014-2019)

Classification by ± 5 percentage-point threshold

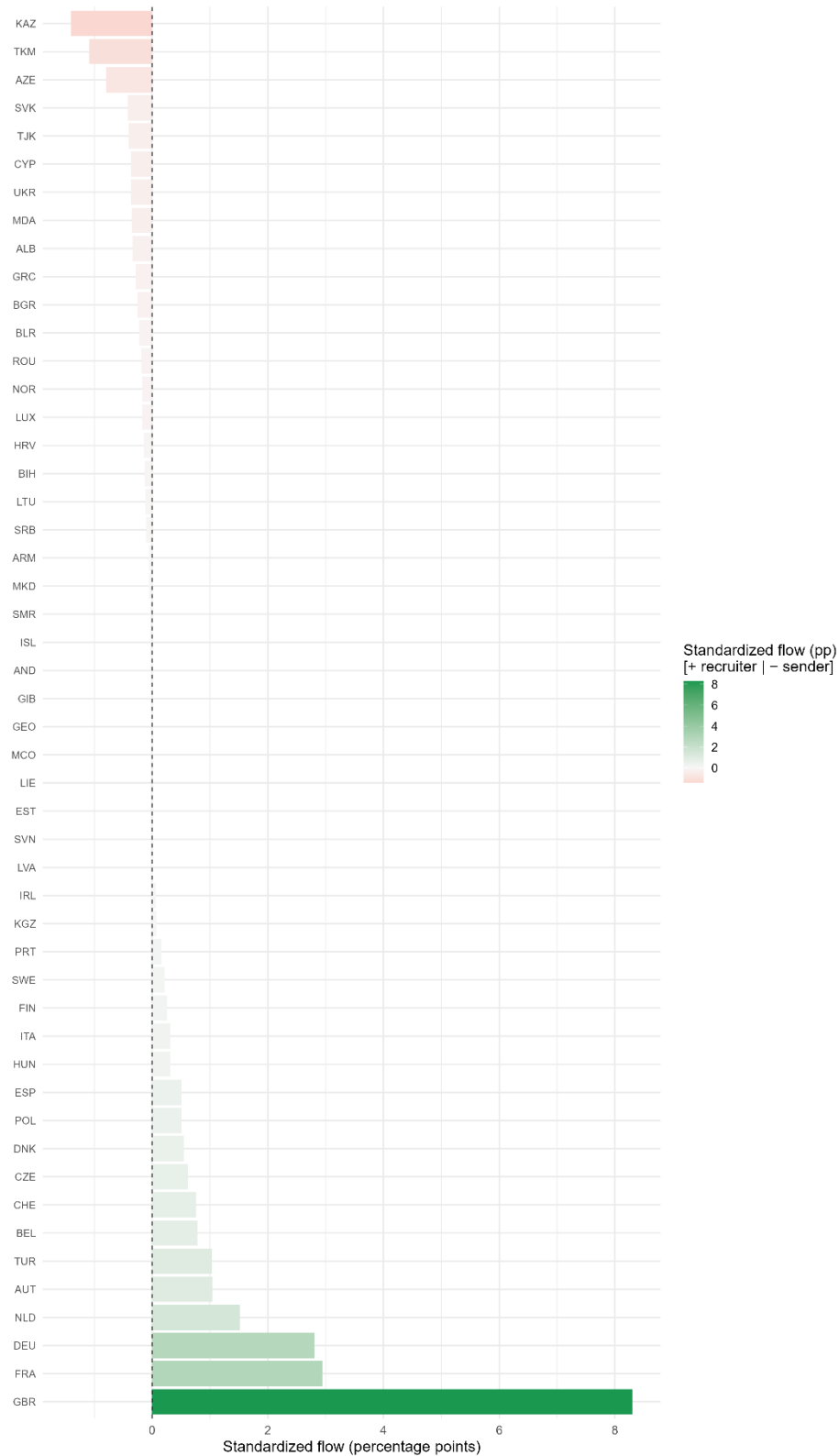
BARS ARE COLORED BY CATEGORIES: TALENT ATTRACTION (GREEN), HORIZONTAL INTERNATIONALIZATION (BLUE), AND MIXED MODEL (RED). THE INDICATOR IS $NET_FLOW_SYM = (INBOUND - OUTBOUND) / (INBOUND + OUTBOUND) \times 100$, BOUNDED BETWEEN -100 AND 100 . CLASSIFICATION THRESHOLDS AT -5 AND $+5$ PERCENTAGE POINTS; DASHED LINE AT 0 . ISO3 LABELS FOR READABILITY.

FIGURE (10)

GLOBAL STANDARDIZED FLOW OF INTERNATIONAL STUDENTS BY COUNTRY (2014–2019 AVERAGES)

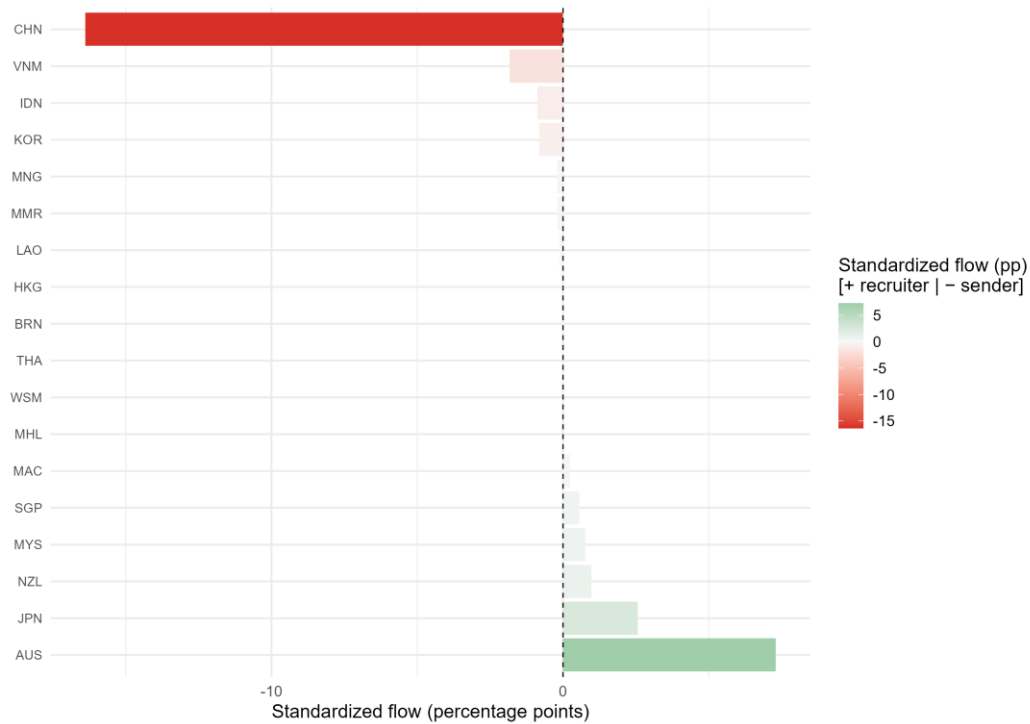
((A) EUROPE & CENTRAL ASIA; (B) EAST ASIA & PACIFIC; (C) NORTH AMERICA; (D) LATIN AMERICA & CARIBBEAN; (E) MIDDLE EAST & NORTH AFRICA; (F) SUB-SAHARAN AFRICA; (G) SOUTH ASIA).

(A) Europe & Central Asia — Global standardized flow (2014-2019)

inbound_std = Country inbound / Global total inbound; outbound_std = Country outbound / Global total outbound;
standardized flow = inbound_std - outbound_std (pp)

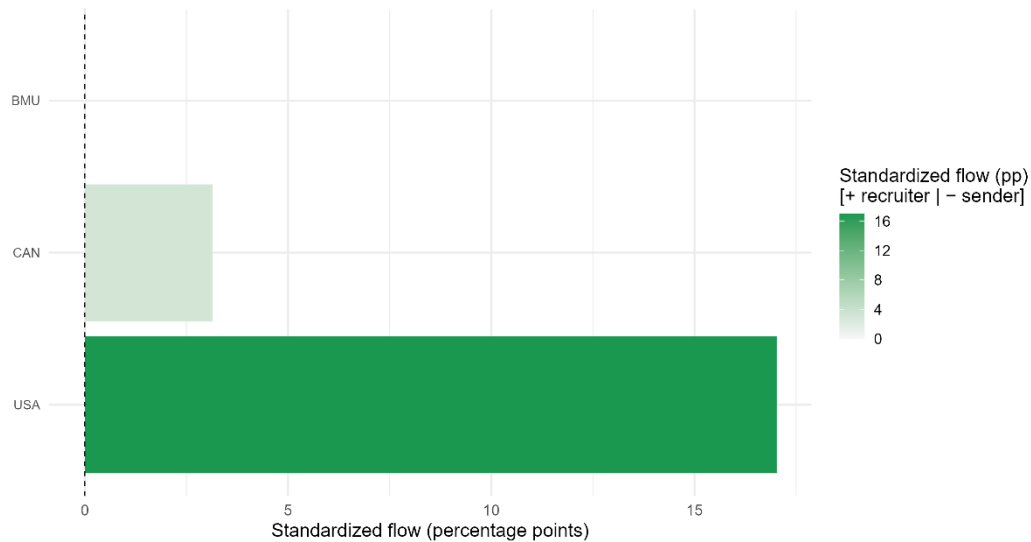
(B) East Asia & Pacific — Global standardized flow (2014-2019)

inbound_std = Country inbound / Global total inbound; outbound_std = Country outbound / Global total outbound;
 standardized flow = inbound_std - outbound_std (pp)



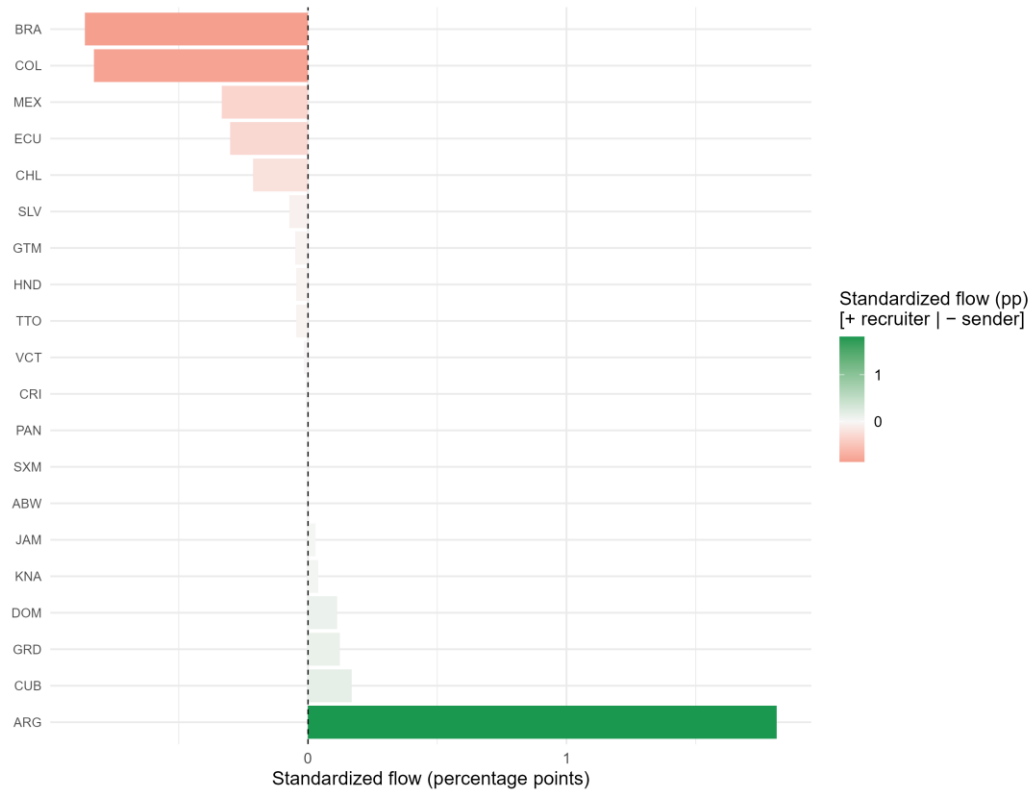
(C) North America — Global standardized flow (2014-2019)

inbound_std = Country inbound / Global total inbound; outbound_std = Country outbound / Global total outbound;
 standardized flow = inbound_std - outbound_std (pp)



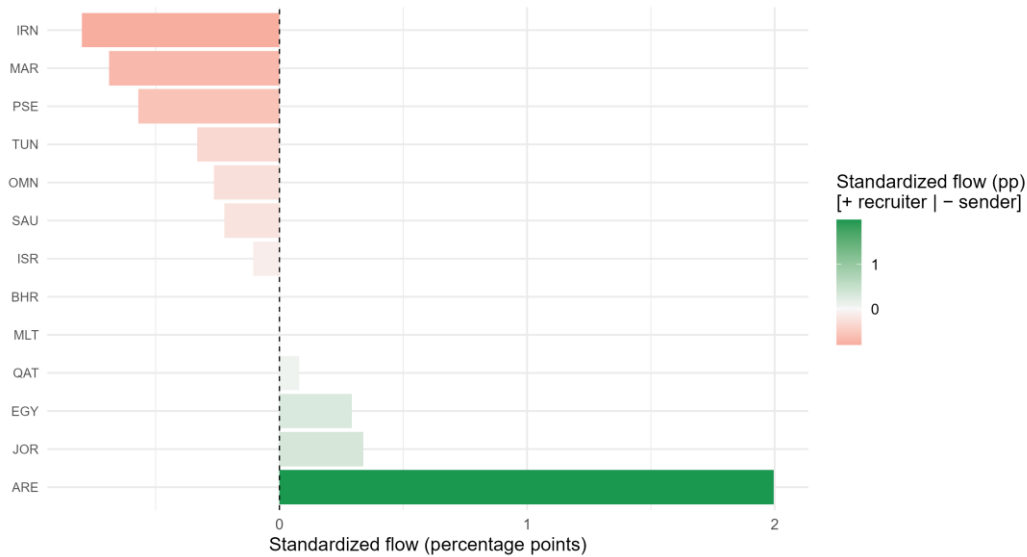
(D) Latin America & Caribbean — Global standardized flow (2014-2019)

inbound_std = Country inbound / Global total inbound; outbound_std = Country outbound / Global total outbound;
 standardized flow = inbound_std - outbound_std (pp)



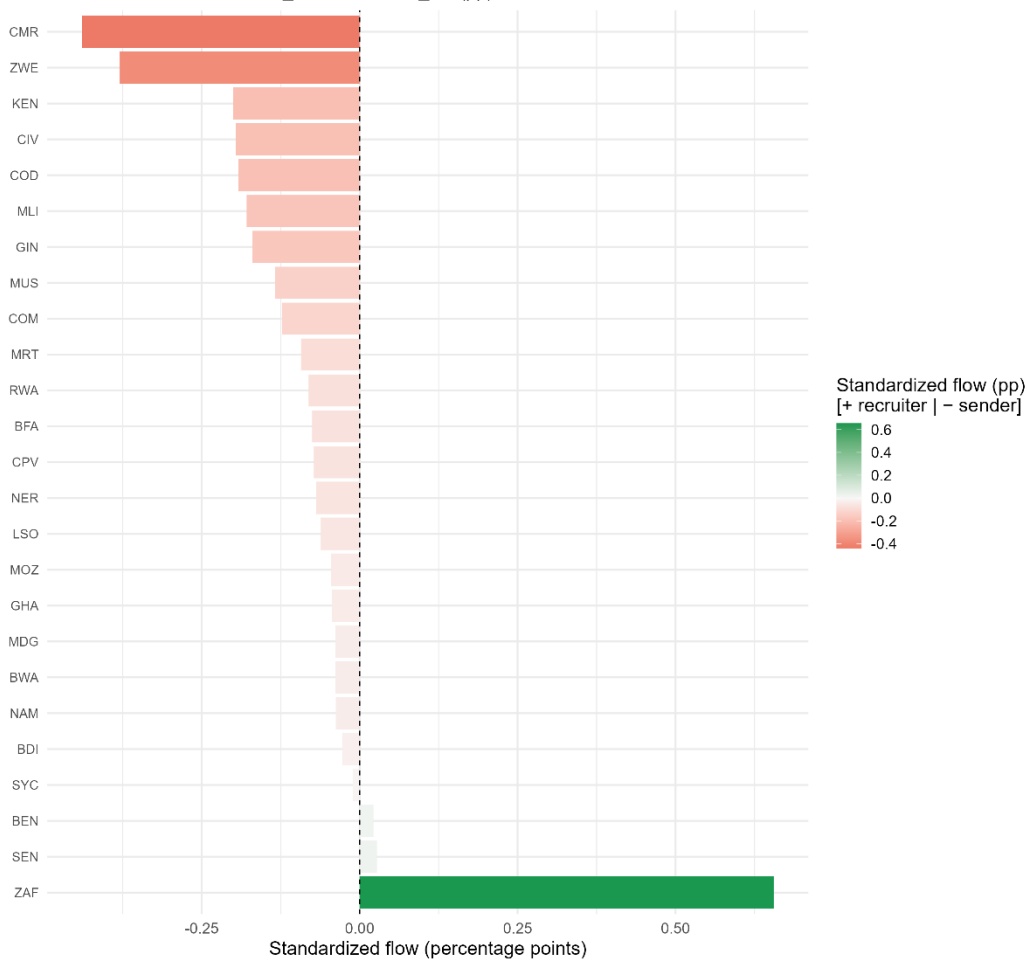
(E) Middle East & North Africa — Global standardized flow (2014-2019)

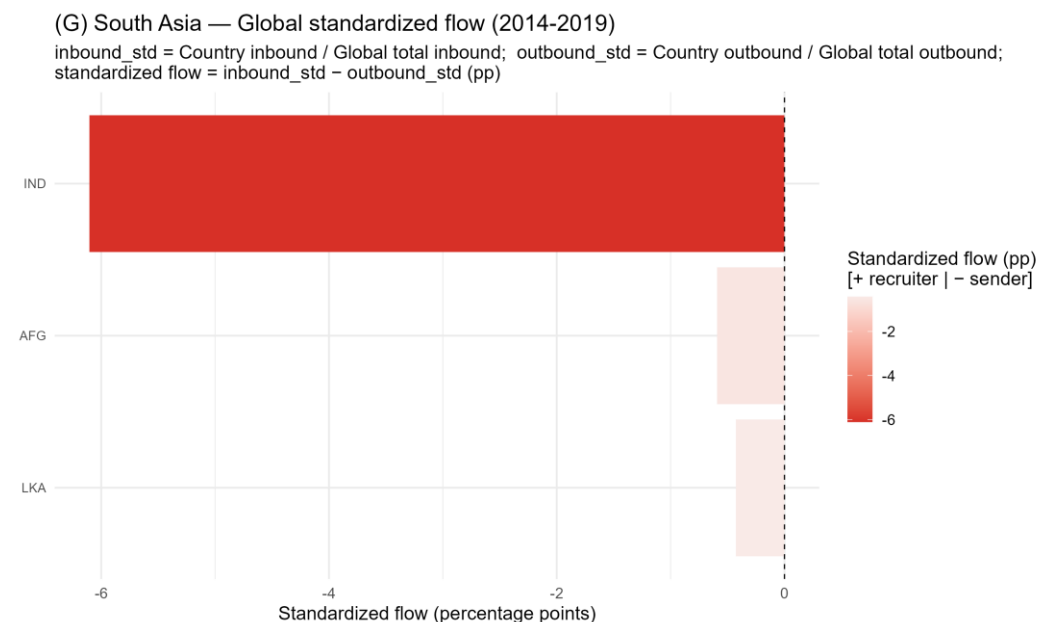
inbound_std = Country inbound / Global total inbound; outbound_std = Country outbound / Global total outbound;
 standardized flow = inbound_std - outbound_std (pp)



(F) Sub-Saharan Africa — Global standardized flow (2014-2019)

inbound_std = Country inbound / Global total inbound; outbound_std = Country outbound / Global total outbound;
 standardized flow = inbound_std - outbound_std (pp)





FOR EACH COUNTRY: INBOUND_STD = COUNTRY INBOUND / GLOBAL TOTAL INBOUND; OUTBOUND_STD = COUNTRY OUTBOUND / GLOBAL TOTAL OUTBOUND; STANDARDIZED FLOW = INBOUND_STD – OUTBOUND_STD, EXPRESSED IN PERCENTAGE POINTS. POSITIVE VALUES (GREEN) INDICATE GLOBAL NET ATTRACTION; NEGATIVE VALUES (RED) INDICATE GLOBAL NET EMISSION. FIGURES ARE PRESENTED BY REGION TO MAXIMIZE READABILITY (ISO3 LABELS).

4.4. Standardized mobility flows and regional asymmetries

Indicators derived from the 2014–2019 period (Figures 9 and 10) show contrasting regional patterns in student mobility balances.

In Europe, Central Asia, and North America, standardized flow values are predominantly positive, reflecting a strong attraction capacity and the consolidation of their university systems as global reception hubs.

In contrast, Latin America and the Caribbean, Sub-Saharan Africa, and South Asia present predominantly negative balances, confirming their role as net student-sending regions, with notable exceptions such as Argentina and Cuba, whose tuition-free university systems generate a positive net attraction capacity (see Section 5.1).

The Middle East and North Africa, along with East Asia and the Pacific, show greater heterogeneity, with highly receiving countries (Japan, Singapore, United Arab Emirates) and others that are predominantly sending countries, such as China, despite having a considerable absolute number of incoming students.

The symmetric net flow (–100 to +100; Figure 9) reinforces this pattern: the concentration of countries with positive values overlaps with those possessing higher GDP per capita and educational investment, suggesting that

the capacity to attract students depends both on academic infrastructure and geopolitical positioning within the global knowledge system.

In summary, the quantitative and cartographic results highlight a significant concentration of educational mobility and investment in the "Global North," as well as the coexistence of different national approaches to internationalization, which vary among attraction, cooperation, and intermediate models.

Taken together, the results reveal that countries' academic attraction capacity depends more on their level of economic development than on relative public investment in education. The identification of a GDP per capita threshold (~59,000 USD PPP), beyond which mobility stabilizes, provides empirical evidence of a point of structural maturity in the most developed higher education systems, while countries in the "Global South" maintain a growth pattern conditioned by their economic and geopolitical position within the global knowledge system.

5. Discussion

The results presented in Figures (1) through (8), excluding (3) and (4), confirm that the internationalization of higher education follows a geopolitical logic of knowledge concentration. Global academic mobility (Figures 1 and 2) demonstrates that the primary destinations for international students are located in the "Global North," while the "Global South" continues to function as a sending region or one with limited attraction capacity, with the exception of Argentina and Cuba. This asymmetry is not merely quantitative; it expresses a power structure that defines which institutions and types of knowledge acquire legitimacy within the global higher education system.

Furthermore, in many countries of the "Global North," relative public investment in education is not a decisive factor, given that their university systems are largely sustained by private contributions and lower state investment. In contrast, in the "Global South," educational investment depends almost exclusively on public budgets, which forces these countries to prioritize their internal needs over the development of international education policies. This structural difference in funding sources reinforces the observed asymmetries in academic attraction capacity and in the consolidation of sustainable international strategies.

In this context, it is relevant to consider recent variations in mobility patterns by gender. The shift observed in 2020, with a higher proportion of male students, calls for a deeper examination of the differential effects of the pandemic on international mobility. This phenomenon suggests the need to

explore the sex-gender and intersectional dimensions of internationalization, both globally and in the “Global South”, where structural inequalities may have been amplified. These aspects shape a future research agenda aimed at understanding how global crises reconfigure the dynamics of access and participation in international higher education.

The economic results complement the geopolitical reading. The correlation and segmented model analysis shows that academic attraction capacity grows along with the level of economic development until reaching a threshold around 59,000 USD PPP per capita, beyond which mobility stabilizes. This finding suggests the existence of a structural maturity phase in the university systems of the “Global North,” where increased wealth no longer significantly expands mobility but instead consolidates hegemonic positions within the global knowledge system. Thus, the economy of academic mobility reproduces the structural asymmetries that organize the global space of knowledge: while some countries reach a saturation point in student recruitment, others continue to expand their internationalization under conditions of dependency, seeking legitimacy within an already hierarchical field.

5.1. Internationalization and structural dependency

As De Wit and Altbach (2021) point out, internationalization has shifted from being a space for cooperation to becoming a global knowledge market where countries compete to attract students, researchers, and funding. The concentration observed in Figure (1) reflects this competition: international flows are oriented toward countries with greater economic, linguistic, and cultural power.

The results from Figures (5) through (8) delve deeper into this relationship: inbound mobility is significantly associated with the level of national wealth, while relative educational investment shows a marginal and non-linear influence. This demonstrates that the volume of investment does not, by itself, guarantee greater international visibility. The identified breakpoint in GDP per capita ($\approx 59,000$ USD PPP) defines a stabilization threshold that coincides with the core economies of the global knowledge system.

The case of Argentina constitutes a notable exception to this pattern: despite sitting well below this threshold, it exhibits one of the highest symmetric net flows in the sample (+84.7%). This suggests that tuition-free public universities, an access policy, not a matter of relative wealth, can generate an attraction capacity comparable to, or even greater than, that

produced by economic income in other contexts, opening up an alternative pathway to talent recruitment that is not explained by the economic model.

The Cuban case reinforces this reading: Cuba, with a system of free education at all levels and an active international scholarship policy (e.g., the Latin American School of Medicine), likewise presents a strongly positive net flow (+63.5%), despite a GDP per capita considerably below the identified threshold. However, tuition-free access is not a sufficient condition on its own: Brazil and Colombia, which also guarantee or promote public access to higher education, exhibit markedly negative net balances (-48.9% and -81.2%, respectively), suggesting that the effect of access policies depends on their relationship with the magnitude of outbound flow and with additional factors: population size, tradition of outbound mobility, and the public/private composition of the university system, that go beyond the tuition-free policy itself.

In the Brazilian case, this pattern of high outbound flow coincides with the implementation of the state program *Ciência sem Fronteiras* (2011–2017), which funded the sending of more than 100,000 Brazilian students and researchers to universities of excellence abroad, primarily in STEM fields (Capes, 2011; Guia do Estudante, 2017), and whose partial discontinuation in 2017 (remaining in place only for graduate studies) suggests that Brazil's negative balance responds, at least in part, to a specific public policy on outbound mobility, and not solely to long-term structural factors. Similarly, Colombia's marked negative balance (-81.2%) coincides with a sustained expansion of public funding for graduate studies abroad (although the indicator used aggregates all tertiary levels, without distinguishing undergraduate from graduate): Colciencias (now Minciencias) has funded doctoral studies abroad continuously since 1992, with the United States, the United Kingdom, and Spain as the main destinations (Minciencias, n.d.); the *Pasaporte a la Ciencia* component of the Colombia Científica program (2017–2019, co-financed with the World Bank) awarded partially forgivable loans for master's and doctoral studies at universities of excellence (ICETEX, 2017; Minciencias, 2019); the COLFUTURO program funds up to USD 50,000 for graduate studies abroad, of which up to 25% can be converted into a grant if the recipient returns to the country (COLFUTURO, n.d.); and the Pacific Alliance's Student and Academic Mobility Platform (Chile, Colombia, Mexico, and Peru) offers reciprocal exchange scholarships for both undergraduate and graduate study (Alianza del Pacífico, 2026). Unlike the Brazilian case, centered on a single, massive undergraduate program, the Colombian strategy concentrated on highly qualified graduate-level human capital, suggesting that

the same elevated outbound balance can respond to very different public-policy architectures across countries

It should be noted that, being a ratio rather than an absolute value, the symmetric net flow indicator can place countries of completely different magnitudes in the same category: Grenada and Saint Kitts and Nevis show a symmetric net flow equal to or higher than that of Argentina and Cuba, respectively (85.6% and 66.7%), even though their absolute volume of inbound students, 6,587 and 2,498, on annual average, represents barely 6.8% and 23.1% of that of Argentina (97,529) and Cuba (10,818). This pattern coincides with the strong concentration of private "offshore" medical universities catering almost exclusively to foreign students, mostly American and Canadian, that characterizes both countries: Grenada has hosted, since the late 1970s, St. George's University School of Medicine, one of the largest and oldest in the Caribbean, which accounts for as much as 19% of the island's GDP (Trines, 2024); Saint Kitts and Nevis, with barely 48,000 inhabitants, currently has five operating medical universities, one for every 9,600 inhabitants (Trines, 2024), a pattern of institutional concentration already documented since the 2000s (Van Zanten & Boulet, 2011). This is, therefore, a mechanism structurally different from the universal public access discussed for Argentina and Cuba: the concentration of a small number of for-profit private institutions catering to a narrow, specific foreign population, rather than a tuition-free policy or a large-scale scholarship program.

The weak correlation between relative educational investment and international attraction capacity (Figure 7) reveals an additional dimension of structural dependency. This result suggests that, for countries in the "Global South," increasing investment in education does not automatically translate into greater visibility on the global academic stage. The attraction of international students seems to depend less on internal budgetary effort than on structural factors already consolidated in the "Global North," such as the historical prestige of its institutions, linguistic dominance, and positioning in international rankings, and in the "Global South," one of the most inequitable regions on the planet, with low investment in public policy. This creates a paradox: peripheral countries must make significant financial efforts to improve their educational systems, yet these efforts rarely allow them to compete on equal terms for global talent, thereby reinforcing the structural nature of asymmetries.

Mobility, therefore, does not respond to a horizontal exchange but rather to a political economy of knowledge that reproduces the structural dependency between center and periphery (Altbach, 2004).

5.2. Coloniality of knowledge and academic legitimacy

These empirical patterns can be interpreted through the lens of the "coloniality of knowledge" concept (Mignolo, 2003, 2011; Quijano, 2024). The concentration of cognitive capital in the "Global North" reproduces the idea that valid knowledge emanates from certain centers, while other spaces must adapt to their paradigms. This epistemic structure operates as what de Sousa Santos (2018) refers to as the "monoculture of scientific reason": a regime of truth that renders diverse epistemologies invisible and subordinates local knowledge.

In this context, internationalization does not always democratize access to knowledge. Frequently, it functions as a legitimation device: universities in the "South" must link themselves with institutions in the "North" to acquire visibility or recognition. The trend observed in Figure (2), a predominantly "South–North" mobility, illustrates this logic of unilateral circulation.

5.3. Divergent models of internationalization

The typological map (Figures 9 and 10) allows for the identification of different strategies in response to this scenario. The **talent attraction model**, predominant in English-speaking countries and certain European powers, reflects an instrumental view of international education aimed at bolstering economic competitiveness and cultural influence. In contrast, the **horizontal model**, more widespread in Latin America and Africa, promotes academic cooperation and regional integration.

Argentina's inclusion in the "talent attraction" category calls for a more nuanced definition. Unlike the countries of the "Global North" that belong to this category through selective talent-attraction policies (competitive scholarships, institutional prestige, educational diplomacy), Argentina reaches a comparable volume of inbound students through a structurally different mechanism: tuition-free public universities as a right, extended to foreign students as well. This suggests that "talent attraction" is not a homogeneous phenomenon, but rather admits at least two underlying logics, one competitive/selective, characteristic of the "Global North," and another based on universal/egalitarian access, which can also emerge from the "Global South", with distinct implications for thinking about epistemic justice in internationalization

Between these two extremes lie **mixed models**, adopted by intermediate countries such as China, India, Chile, or Mexico, which combine talent attraction strategies with regional collaboration programs. This model often reflects a two-way geopolitical strategy: utilizing talent recruitment to

ascend the global knowledge hierarchy while employing cooperation to consolidate regional leadership. This heterogeneity demonstrates that internationalization is not a single or linear process, but rather a field of dispute where economic, political, and cultural interests converge.

It should be noted that the "mixed model" does not constitute a homogeneous group: it brings together both consolidated economies with high outbound flow and structurally sending countries with lower relative development, which suggests that this category functions more as a transition zone between poles than as a unified strategy.

The contrast between the horizontal cooperation models of the "Global South" and the recruitment programs of the "Global North" can also be observed in the nature of their academic mobility policies. Table (1) below summarizes the main international higher education programs and provides empirical evidence of this geopolitical division: talent attraction programs (e.g., Fulbright, Chevening) are concentrated in countries with positive standardized flows, whereas horizontal cooperation initiatives (e.g., PEC-PG) are characteristic of countries with negative flows, reflecting their different structural positions within the global knowledge system.

The case of Argentina, already discussed, exemplifies this disconnect: its structural position responds to the tuition-free university system, not to a specific scholarship program, which confirms that the discursive orientation of a mobility policy does not always coincide with the country's structural position within actual flows.

TABLE (1)

MAIN HIGHER EDUCATION INTERNATIONAL PROGRAMS ACCORDING TO THE TYPE OF POLITICS

Country	Program / initiative	Type of politics	Key characteristics
United States	Fulbright Program; Biden-Harris STEM Talent Initiatives	Talent attraction	Fosters foreign researchers and students attraction; strong cultural diplomacy component (soft power).
United Kingdom	Chevening Scholarships	Talent attraction	Scholarships for emerging leaders from underdeveloped countries; Foreign Office's geopolitical influence strategy.
Germany	DAAD Scholarships; Humboldt Research Fellowship	Talent attraction	Consolidation of German-scientific leadership; financing of excellence stays and academic networks.

France	Passeport Talent; Campus France	Talent attraction	Focus on foreign professionals and researchers; linked between education, innovation, and qualified migration.
Switzerland	Swiss Government Excellence Scholarships	Talent attraction	Government scholarships for research and PhD in Swiss universities.
China	China Scholarship Council (CSC); China-UK Research and Innovation Partnership Fund	Mixed	Foreign talent attraction mixed with strategic cooperation in researching.
Russia	Rossotrudnichestvo; Lomonosov MSU Mobility	Mixed	Programs oriented towards neighboring regions and allied countries; they include bilateral scientific cooperation.
Australia	Australia Awards; Australia for ASEAN Scholarships; Research Training Program (RTP)	Talent attraction	Regional educational diplomacy policies and attraction of high level postgraduate students.
Canada	International Experience Canada (IEC); Global Skills Opportunity	Mixed	Supports international student mobility and acquisition of global competencies.
Brazil	PEC-G (Undergraduate); PEC-PG (Graduate)	Mixed	South-South cooperation programs; fosters educational bonds with Latin America and Africa.
Argentina	Scholarships from the Argentine Ministry of Foreign Affairs; Pila Program; Tuition-free education	Talent attraction	Tuition-free public universities explain its high capacity to attract foreign students.
Colombia	PILA program; Pacific Alliance	Mixed	Fosters reciprocal regional exchange and undergraduate and graduate education with countries of the South and the Latin American Pacific.
Cuba	Latin American School of Medicine (ELAM); Cuban Government Scholarships	Talent attraction	Medical scholarships and tuition-free education explain its high attraction capacity.
Mexico	Mexican Government Scholarships for Foreigners; PILA program	Mixed	Combines regional cooperation with moderate attraction capacity.

SOURCE: AUTHORS' COMPILATION BASED ON INSTITUTIONAL INFORMATION AVAILABLE AT MOBILITY AND EDUCATIONAL COOPERATION PROGRAMS OFFICIAL WEBPAGES: FULBRIGHT PROGRAM ([HTTPS://WWW.FULBRIGHTPROGRAM.ORG](https://www.fulbrightprogram.org)); CHEVENING SCHOLARSHIPS ([HTTPS://WWW.CHEVENING.ORG](https://www.chevening.org)); DAAD – GERMAN ACADEMIC EXCHANGE SERVICE ([HTTPS://WWW.DAAD.DE/EN](https://www.daad.de/en)); HUMBOLDT RESEARCH

FELLOWSHIP ([HTTPS://WWW.HUMBOLDT-FOUNDATION.DE](https://www.humboldt-foundation.de)); CAMPUS FRANCE ([HTTPS://WWW.CAMPUSFRANCE.ORG](https://www.campusfrance.org)); PASSEPORT TALENT ([HTTPS://WWW.SERVICE-PUBLIC.FR](https://www.service-public.fr)); SWISS GOVERNMENT EXCELLENCE SCHOLARSHIPS ([HTTPS://WWW.SBFI.ADMIN.CH](https://www.sbf.admin.ch)); CHINA SCHOLARSHIP COUNCIL (CSC) ([HTTPS://WWW.CSC.EDU.CN](https://www.csc.edu.cn)); ROSSOTRUDNICHESTVO SCHOLARSHIPS (RUSSIA) ([HTTPS://RS.GOV.RU/EN](https://rs.gov.ru/en)); AUSTRALIA AWARDS AND RESEARCH TRAINING PROGRAM ([HTTPS://WWW.STUDYAUSTRALIA.GOV.AU](https://www.studyaustralia.gov.au)); CANADA INTERNATIONAL EXPERIENCE AND GLOBAL SKILLS OPPORTUNITY ([HTTPS://WWW.EDUCANADA.CA](https://www.educanada.ca)); BRAZIL PEC-G / PEC-PG PROGRAMS ([HTTPS://WWW.GOV.BR/CAPE](https://www.gov.br/capes)); ARGENTINA BECAS DE LA CANCELLERÍA ARGENTINA ([HTTPS://WWW.ARGENTINA.GOB.AR/EDUCACION](https://www.argentina.gob.ar/educacion)); CUBA LATIN AMERICAN SCHOOL OF MEDICINE (ELAM) ([HTTPS://WWW.ELACM.SLD.CU](https://www.elacm.sld.cu)); COLOMBIA PROGRAMA PILA ([HTTPS://WWW.ASCUN.ORG.CO](https://www.ascun.org.co)); MÉXICO BECAS DEL GOBIERNO MEXICANO PARA EXTRANJEROS ([HTTPS://WWW.GOB.MX/AMEXCID](https://www.gob.mx/amexcid)); PACIFIC ALLIANCE ([HTTPS://BECAS.ALIANZAPACIFICO.NET](https://becas.alianzapacifico.net)).

NOTE: THE CATEGORY ASSIGNED IN THIS TABLE (**TALENT ATTRACTION, HORIZONTAL, MIXED**) REFERS TO THE DECLARED ORIENTATION OF THE PROGRAM OR MOBILITY POLICY, AND SHOULD NOT BE CONFUSED WITH THE TYPOLOGICAL CLASSIFICATION BASED ON THE QUANTITATIVE SYMMETRIC NET FLOW INDICATOR (FIGURES 9 AND 10). A COUNTRY MAY SUSTAIN HORIZONTAL/REGIONAL-ORIENTED PROGRAMS WHILE, AT THE SAME TIME, EXHIBITING A POSITIVE OR NEGATIVE NET FLOW BALANCE, SINCE BOTH DIMENSIONS—THE DECLARATIVE/INSTITUTIONAL AND THE EFFECTIVE/QUANTITATIVE—DO NOT NECESSARILY COINCIDE. FOR RUSSIA, NO NET FLOW SERIES IS AVAILABLE IN THE SOURCE USED (UIS-EdStats); ITS CLASSIFICATION AS "MIXED" REFLECTS ONLY THE TYPE OF PROGRAM DESCRIBED.

The net flow and standardized flow indicators introduce a quantitative dimension that complements the typological classification of countries. Regions with positive values in both indices generally correspond to talent attraction models, while those with negative values are associated with horizontal strategies or a subordinate participation in the global knowledge market. This contrast highlights that the asymmetries of internationalization derive not only from educational policies but also from the structural positions of countries in the global economy. In Latin America, negative balances do not necessarily reflect an absence of internationalization, but rather a pattern of functional dependency on the hubs of the "Global North", although there are notable exceptions, such as Argentina, which combines strong regional appeal with a positive net flow, thereby qualifying the view of the region as uniformly characterized by structural dependence.

5.4. Epistemic justice and alternatives from the South

In this scenario, epistemic justice emerges as a guiding principle for reconfiguring international education. Following Santos (2018) and Walsh (2009), it implies recognizing subaltern knowledge and promoting a dialogue among epistemologies under conditions of equality. Latin America, with its critical tradition and history of solidarity-based integration, offers fertile ground for this debate to flourish.

Initiatives such as the Association of Montevideo Group Universities (AUGM), ENLACES, INILAT, or the Latin American Academic Exchange Program (PILA), coordinated by the National Association of Universities and Institutions of Higher Education (ANUIES) of Mexico, the Association of

Colombian Universities (ASCUN), and the National Inter-University Council (CIN) of Argentina, along with the Pacific Alliance's Student and Academic Mobility Platform (Chile, Colombia, Mexico, and Peru; mentioned in 5.1 regarding the Colombian case; Alianza del Pacífico, 2026), embody an alternative paradigm of horizontal internationalization based on reciprocity and the co-construction of knowledge. These experiences demonstrate that it is possible to articulate cooperation without subordination, and that the circulation of knowledge can be organized from the South toward the world.

The Argentine case also offers a concrete pathway for thinking about epistemic justice beyond horizontal cooperation: it complicates the North-recruiter/South-cooperator dichotomy and suggests that tuition-free education can itself constitute a form of non-subordinated internationalization: it attracts without selecting, it receives without imposing conditions. At the same time, this tuition-free system is underpinned by the academic quality of its educational system; unlike what is known of other systems, public education sets the national quality standard. Various studies (Luchilo, 2024, 2026) show foreign students' positive assessment of the academic quality of Argentine education alongside its tuition-free character.

The challenge consists in transforming internationalization from a mechanism of competition into a space for epistemic cooperation, where cognitive diversity is recognized as a source of innovation rather than a mark of backwardness. In this sense, the results from Figures (1), (2), and (5) through (8), and the information in Table (1), should be understood not only as a diagnosis of inequality but also as empirical evidence that illuminates possible paths toward a more equitable educational globalization.

5.5. Toward a situated internationalization

The horizon of an internationalization with epistemic justice requires rethinking criteria for excellence, languages of publication, and academic evaluation mechanisms. It demands public policies that promote intra-regional mobility, the recognition of local knowledge, and the equitable participation of Southern institutions in global scientific production.

This tension becomes especially visible in the South's own funding programs for studying abroad. Their meaning is not univocal: they can operate as a mechanism of brain drain and legitimation of the North's hierarchy, when they adopt external quality criteria without questioning them, such as the admission criterion of "one of the best universities in the world" required by Pasaporte a la Ciencia (ICETEX, 2017; Minciencias, 2019), or as formative circulation, insofar as recipients actually return and capitalize on their training in their country of origin, as sought by the return-based loan-forgiveness

schemes of Colciencias (Minciencias, n.d., COLFUTURO (COLFUTURO, n.d.), or Ciência sem Fronteiras itself (Capes, 2011; Guia do Estudante, 2017). Which of the two logics predominates depends on a variable that this study does not measure directly, the effective return rate, which opens up a concrete avenue for future research: to what extent public funding for outbound mobility manages to become endogenous capacity, rather than passively reinforcing the North's centrality as validator of knowledge.

As Mignolo (2011) argues, decolonizing knowledge does not imply rejecting modernity, but rather locating it within a plurality of rationalities. From Latin America, this challenge translates into building a **situated internationalization** that stems from the region's own historical and social needs and contributes to balancing the global map of knowledge.

The new indicators, net flow and standardized flow, offer an empirical pathway to measure the magnitude of structural asymmetries between regions and reinforce the theoretical framework of the colonality of knowledge. Their incorporation allows for the articulation of the geography of flows with the geopolitics of knowledge, showing that academic mobility not only reflects historical inequalities but can also reveal the turning points from which the "Global South" reconfigures its participation in the global knowledge system.

6. Conclusion

In recent decades, the internationalization of higher education has emerged as a space where cooperation, competition, and academic diplomacy intertwine. However, the results of this study, supported by comparative data, maps, and policy analysis, show that this process remains inscribed within an unequal geography of knowledge, where mobility flows, epistemic legitimacy, and resources are concentrated in the countries of the "Global North."

Empirical analyses confirm that academic attraction capacity is significantly associated with the level of economic development, while relative educational investment shows a marginal and non-linear effect. The identification of a threshold around 59,000 USD PPP per capita reveals a point of structural maturity in the most developed university systems, where mobility tends to stabilize and differences are sustained by geopolitical rather than budgetary factors.

Student mobility and disparities in educational investment reveal that international education cannot be understood apart from the global economic structure. The most visible universities and the wealthiest nations continue to define quality standards and languages of academic legitimation. In this context, the colonality of knowledge acts as a persistent framework that restricts the relationships between knowledge, power, and territory.

Nevertheless, the analysis of the typological map and the synthesis of international programs proves that alternatives are beginning to emerge in the "Global South", especially in Latin America, where horizontal cooperation experiences and regional networks promote a more inclusive internationalization. These initiatives, such as those of AUGM, ENLACES, INILAT, PILA, or the Pacific Alliance, point toward an exchange model based on reciprocity and the co-construction of knowledge, rather than unidirectional transfer.

A particular finding of this study is that the position of "net receiver" of international students, typically associated with the core economies of the "Global North", does not depend exclusively on a country's relative wealth. The cases of Argentina and Cuba show that tuition-free public education combined with academic quality, understood as an access policy rather than a market capacity, can generate an attraction capacity comparable to that of the more developed economies. At the same time, the cases of Brazil and Colombia, which likewise maintain free public systems but retain an outbound balance, indicate that such a policy does not operate automatically, but rather in relation to other structural factors. This nuances the North-recruiter/South-cooperator dichotomy and opens up a specific avenue of inquiry for future research on access policies as an alternative mechanism of internationalization.

The challenge lies in moving from a talent attraction paradigm toward one of epistemic cooperation that recognizes the value of situated knowledge and the multiple rationalities that coexist within the field of knowledge. This requires revising academic evaluation mechanisms, criteria for excellence, and incentive systems that, even today, reproduce colonial hierarchies. To operationalize this shift, it is crucial for the region's accreditation and funding agencies to develop criteria that specifically value publication in Latin American journals, intra-regional mobility, and "South-South" co-authorship as indicators of academic quality and impact.

From a Latin American perspective, advancing toward an internationalization with epistemic justice implies strengthening cognitive sovereignty and regional integration, promoting intra-regional mobility, ensuring equitable access to scientific production, and increasing the visibility of local epistemologies within global circuits.

Ultimately, the findings of this study invite us to think of internationalization not only as a process of openness but also as a field of symbolic and material dispute where the conditions of possibility for knowledge are at stake. The proposed net flow and standardized flow

indicators provide, precisely, a quantitative tool to monitor the evolution of these disputes and asymmetries. If internationalization can be redefined from the "South" by articulating cooperation, plurality, and epistemic justice, it could cease to reproduce hierarchies and become a space for cognitive balance and mutual recognition.

For this purpose, as De Sousa Santos (2018) suggests, the construction of an "ecology of knowledges" becomes an indispensable condition for global knowledge to stop being a territory of hegemony and become a space for dialogue between diverse worlds, languages, and rationalities.

Only through such a plural ecology of knowledge will it be possible to transcend the current geography of inequality and move toward an internationalization capable of combining excellence with equity and globalization with cognitive dignity.

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Ethical approval

This study was based exclusively on the analysis of aggregate, publicly available country-level statistics (World Bank/EdStats-Data360; UIS-UNESCO). No primary data were collected from individuals, and no human participants were involved; therefore, review or approval by an Institutional Review Board (IRB) and the collection of informed were not required.

Declaration of competing interest

The authors declare no competing interests.

Data availability statement

The data used in this study come from open-access public sources: the World Bank's Data360/EdStats platform (<https://data360.worldbank.org>) and UNESCO's UIS Data Browser (<https://databrowser.uis.unesco.org>), corresponding to indicators of international student mobility (inbound and

outbound), GDP per capita (PPP), and public education investment for the 2014-2019 period. The processed data tables, analysis scripts (R), and the complete country-level typological classification are available upon request from the authors.

CRediT author statement

Daniel Antenucci: conceptualization, methodology, software, formal analysis, data curation, visualization, writing, review, and editing. **Andrea Rizzotti:** conceptualization, writing, review, and editing.

Statement on AI use

The authors used Claude (Anthropic; Claude Sonnet 4.5 and Sonnet 5 models, depending on availability during the study period) as a support tool during the preparation of this manuscript. Its use included: (1) identifying and diagnosing inconsistencies in the source datasets (World Bank/Data360 and UIS-UNESCO) used for the analysis of student mobility, including detecting formatting errors in the data export and cross-checking values against primary sources; (2) writing and debugging R code for generating figures and data visualizations; (3) reviewing portions of the text in the Conclusions and Methods sections, based on empirical findings verified by the authors; and (4) verifying bibliographic consistency across the different versions of the manuscript. All content generated or edited using this tool was reviewed and validated by the authors, who assume full responsibility for the accuracy of the data, citations, code, and conclusions presented.

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Appendix: Complete Regional and Typological Classification of Countries (2014-2019)

The 205 countries included in the analysis are listed, grouped by region (World Bank) in the same order used in Figures 9 and 10. The typological category is calculated from the symmetric net flow of student mobility (± 5 percentage-point threshold, Section 4.3). Countries without available inbound-student data in the source used (UIS-EdStats) are grouped under "No data" and were not included in the computation of Figures 9 and 10.

Country	ISO3	Region	Inbound (avg.)	Outbound (avg.)	Symmetric net flow (%)	Typological category
Albania	ALB	Europe & Central Asia	2,106.5	17,570.8	-78.6	Mixed model
Andorra	AND	Europe & Central Asia	232.8	1,446.7	-72.3	Mixed model
Armenia	ARM	Europe & Central Asia	4,599.5	6,982.5	-20.6	Mixed model
Austria	AUT	Europe & Central Asia	71,199	19,116.3	57.7	Talent attraction
Azerbaijan	AZE	Europe & Central Asia	4,432.8	41,319.2	-80.6	Mixed model
Belarus	BLR	Europe & Central Asia	16,967.4	26,323.2	-21.6	Mixed model
Belgium	BEL	Europe & Central Asia	54,014.7	14,674.7	57.3	Talent attraction
Bosnia and Herzegovina	BIH	Europe & Central Asia	7,459.2	13,281.5	-28.1	Mixed model
Bulgaria	BGR	Europe & Central Asia	13,454.5	24,658	-29.4	Mixed model
Croatia	HRV	Europe & Central Asia	2,945	9,418.5	-52.4	Mixed model
Cyprus	CYP	Europe & Central Asia	8,979.8	25,687.3	-48.2	Mixed model
Czechia	CZE	Europe & Central Asia	43,429.2	12,474.2	55.4	Talent attraction
Denmark	DNK	Europe & Central Asia	32,583.3	5,450.2	71.3	Talent attraction
Estonia	EST	Europe & Central Asia	3,826.9	3,959.8	-1.7	Horizontal internationalization
Finland	FIN	Europe & Central Asia	23,462	10,332.7	38.9	Talent attraction
France	FRA	Europe & Central Asia	242,377	92,827.8	44.6	Talent attraction

Georgia	GEO	Europe & Central Asia	9,243.8	9,801.2	-2.9	Horizontal internationalization
Germany	DEU	Europe & Central Asia	264,619.5	120,315.8	37.5	Talent attraction
Gibraltar	GIB	Europe & Central Asia	0	1,042.7	-100	Mixed model
Greece	GRC	Europe & Central Asia	25,728.8	37,594.7	-18.7	Mixed model
Hungary	HUN	Europe & Central Asia	27,918.2	11,681.5	41	Talent attraction
Iceland	ISL	Europe & Central Asia	1,387.8	2,780.3	-33.4	Mixed model
Ireland	IRL	Europe & Central Asia	19,190.8	15,132.5	11.8	Talent attraction
Italy	ITA	Europe & Central Asia	88,274.5	69,043.5	12.2	Talent attraction
Kazakhstan	KAZ	Europe & Central Asia	18,530	82,964.8	-63.5	Mixed model
Kyrgyzstan	KGZ	Europe & Central Asia	15,154.3	11,094.2	15.5	Talent attraction
Latvia	LVA	Europe & Central Asia	6,378.5	5,489	7.5	Talent attraction
Liechtenstein	LIE	Europe & Central Asia	715.7	1,050.3	-19	Mixed model
Lithuania	LTU	Europe & Central Asia	5,630.8	10,860.3	-31.7	Mixed model
Luxembourg	LUX	Europe & Central Asia	3,253.7	10,827	-53.8	Mixed model
Moldova	MDA	Europe & Central Asia	3,630.8	19,590	-68.7	Mixed model
Monaco	MCO	Europe & Central Asia	3	409.7	-98.6	Mixed model
Montenegro	MNE	Europe & Central Asia	—	4,843	—	No data
Netherlands	NLD	Europe & Central Asia	92,576.3	17,176.5	68.7	Talent attraction
North Macedonia	MKD	Europe & Central Asia	2,575.8	5,022	-32.2	Mixed model
Norway	NOR	Europe & Central Asia	10,570.3	18,028.7	-26.1	Mixed model
Poland	POL	Europe & Central Asia	51,142.7	24,833.8	34.6	Talent attraction
Portugal	PRT	Europe & Central Asia	22,942.8	14,538	22.4	Talent attraction
Romania	ROU	Europe & Central Asia	26,562	33,971.8	-12.2	Mixed model
Russian Federation	RUS	Europe & Central Asia	—	56,382.5	—	No data

San Marino	SMR	Europe & Central Asia	711.5	2,333.7	-53.3	Mixed model
Serbia	SRB	Europe & Central Asia	10,673.2	14,744	-16	Mixed model
Slovakia	SVK	Europe & Central Asia	11,191	30,259.5	-46	Mixed model
Slovenia	SVN	Europe & Central Asia	3,183.2	3,199	-0.3	Horizontal internationalization
Spain	ESP	Europe & Central Asia	65,684.5	38,850.3	25.7	Talent attraction
Sweden	SWE	Europe & Central Asia	28,438.8	16,851.3	25.6	Talent attraction
Switzerland	CHE	Europe & Central Asia	52,566.5	14,459.3	56.9	Talent attraction
Tajikistan	TJK	Europe & Central Asia	1,706	20,322.8	-84.5	Mixed model
Turkmenistan	TKM	Europe & Central Asia	87	50,950	-99.7	Mixed model
Türkiye	TUR	Europe & Central Asia	99,330.5	46,109	36.6	Talent attraction
Ukraine	UKR	Europe & Central Asia	57,583	71,595	-10.9	Mixed model
United Kingdom	GBR	Europe & Central Asia	444,731.7	35,214.3	85.3	Talent attraction
Uzbekistan	UZB	Europe & Central Asia	—	36,223.7	—	No data
Australia	AUS	East Asia & Pacific	371,812.3	12,931.3	93.3	Talent attraction
Brunei Darussalam	BRN	East Asia & Pacific	421	3,098	-76.1	Mixed model
Cambodia	KHM	East Asia & Pacific	—	5,881.2	—	No data
China	CHN	East Asia & Pacific	150,904.5	906,876.7	-71.5	Mixed model
Fiji	FJI	East Asia & Pacific	—	1,345	—	No data
Hong Kong SAR, China	HKG	East Asia & Pacific	34,709.7	36,194.5	-2.1	Horizontal internationalization
Indonesia	IDN	East Asia & Pacific	7,599.5	48,206.2	-72.8	Mixed model
Japan	JPN	East Asia & Pacific	159,685.8	32,016.8	66.6	Talent attraction
Kiribati	KIR	East Asia & Pacific	—	1,072.5	—	No data
Laos	LAO	East Asia & Pacific	453.7	5,536	-84.9	Mixed model

Macao SAR, China	MAC	East Asia & Pacific	14,267	2,739.7	67.8	Talent attraction
Malaysia	MYS	East Asia & Pacific	103,588.4	63,215.7	24.2	Talent attraction
Marshall Islands	MHL	East Asia & Pacific	86	219.5	-43.7	Mixed model
Micronesia	FSM	East Asia & Pacific	—	186.8	—	No data
Mongolia	MNG	East Asia & Pacific	1,542.7	10,915.2	-75.2	Mixed model
Myanmar	MMR	East Asia & Pacific	459	9,267	-90.6	Mixed model
Nauru	NRU	East Asia & Pacific	—	164.8	—	No data
New Zealand	NZL	East Asia & Pacific	53,036.2	5,173	82.2	Talent attraction
North Korea	PRK	East Asia & Pacific	—	1,415.2	—	No data
Palau	PLW	East Asia & Pacific	—	46	—	No data
Papua New Guinea	PNG	East Asia & Pacific	—	1,503.3	—	No data
Philippines	PHL	East Asia & Pacific	—	17,233.7	—	No data
Samoa	WSM	East Asia & Pacific	98.3	980.8	-81.8	Mixed model
Singapore	SGP	East Asia & Pacific	52,778	24,062	37.4	Talent attraction
Solomon Islands	SLB	East Asia & Pacific	—	3,221.2	—	No data
South Korea	KOR	East Asia & Pacific	70,546.8	105,363.3	-19.8	Mixed model
Thailand	THA	East Asia & Pacific	31,571	31,042.3	0.8	Horizontal internationalization
Timor-Leste	TLS	East Asia & Pacific	—	2,600.5	—	No data
Tonga	TON	East Asia & Pacific	—	1,244.3	—	No data
Tuvalu	TUV	East Asia & Pacific	—	436.5	—	No data
Vanuatu	VUT	East Asia & Pacific	—	1,793.7	—	No data
Vietnam	VNM	East Asia & Pacific	4,490	89,784.7	-90.5	Mixed model
Bermuda	BMU	North America	155	1,568.7	-82	Mixed model
Canada	CAN	North America	206,508.3	49,160.8	61.5	Talent attraction

United States	USA	North America	926,487.3	86,301.3	83	Talent attraction
Antigua and Barbuda	ATG	Latin America & Caribbean	—	616.8	—	No data
Argentina	ARG	Latin America & Caribbean	97,529.3	8,087.8	84.7	Talent attraction
Aruba	ABW	Latin America & Caribbean	307.7	271.7	6.2	Talent attraction
Bahamas	BHS	Latin America & Caribbean	—	3,453.5	—	No data
Barbados	BRB	Latin America & Caribbean	—	1,173	—	No data
Belize	BLZ	Latin America & Caribbean	—	811.8	—	No data
Bolivia	BOL	Latin America & Caribbean	—	16,350.7	—	No data
Brazil	BRA	Latin America & Caribbean	20,433.2	59,607.2	-48.9	Mixed model
British Virgin Islands	VGB	Latin America & Caribbean	—	348.7	—	No data
Cayman Islands	CYM	Latin America & Caribbean	—	601.8	—	No data
Chile	CHL	Latin America & Caribbean	5,391.8	15,020.7	-47.2	Mixed model
Colombia	COL	Latin America & Caribbean	4,448.3	42,782	-81.2	Mixed model
Costa Rica	CRI	Latin America & Caribbean	2,678.3	2,952	-4.9	Horizontal internationalization
Cuba	CUB	Latin America & Caribbean	10,817.7	2,414.5	63.5	Talent attraction
Curaçao	CUW	Latin America & Caribbean	—	192.2	—	No data
Dominica	DMA	Latin America & Caribbean	—	837.2	—	No data

Dominican Republic	DOM	Latin America & Caribbean	10,037	4,283.8	40.2	Talent attraction
Ecuador	ECU	Latin America & Caribbean	5,527.2	19,260.3	-55.4	Mixed model
El Salvador	SLV	Latin America & Caribbean	742.5	4,051.5	-69	Mixed model
Grenada	GRD	Latin America & Caribbean	6,587	511.7	85.6	Talent attraction
Guatemala	GTM	Latin America & Caribbean	918	3,129.2	-54.6	Mixed model
Guyana	GUY	Latin America & Caribbean	—	1,180.3	—	No data
Haiti	HTI	Latin America & Caribbean	—	10,387.3	—	No data
Honduras	HND	Latin America & Caribbean	2,114.8	4,130.7	-32.3	Mixed model
Jamaica	JAM	Latin America & Caribbean	6,423	4,758.8	14.9	Talent attraction
Mexico	MEX	Latin America & Caribbean	17,653.4	32,309.5	-29.3	Mixed model
Nicaragua	NIC	Latin America & Caribbean	—	3,209	—	No data
Panama	PAN	Latin America & Caribbean	3,119	3,199.8	-1.3	Horizontal internationalization
Paraguay	PRY	Latin America & Caribbean	—	12,955.2	—	No data
Peru	PER	Latin America & Caribbean	—	30,640.7	—	No data
Puerto Rico	PRI	Latin America & Caribbean	—	789	—	No data
Saint Kitts and Nevis	KNA	Latin America & Caribbean	2,498	499	66.7	Talent attraction
Saint Lucia	LCA	Latin America & Caribbean	—	858.7	—	No data

Saint Vincent and the Grenadines	VCT	Latin America & Caribbean	0	730.2	-100	Mixed model
Sint Maarten	SXM	Latin America & Caribbean	52	117	-38.5	Mixed model
Suriname	SUR	Latin America & Caribbean	—	937.3	—	No data
Trinidad and Tobago	TTO	Latin America & Caribbean	1,524	3,549.7	-39.9	Mixed model
Turks and Caicos Islands	TCA	Latin America & Caribbean	—	176.3	—	No data
Uruguay	URY	Latin America & Caribbean	—	4,784.7	—	No data
Venezuela	VEN	Latin America & Caribbean	—	21,629.7	—	No data
Algeria	DZA	Middle East & North Africa	—	25,004.5	—	No data
Bahrain	BHR	Middle East & North Africa	5,649.7	5,548.2	0.9	Horizontal internationalization
Djibouti	DJI	Middle East & North Africa	—	2,330	—	No data
Egypt	EGY	Middle East & North Africa	49,488.5	33,362.7	19.5	Talent attraction
Iran	IRN	Middle East & North Africa	17,828.3	54,092	-50.4	Mixed model
Iraq	IRQ	Middle East & North Africa	—	31,377	—	No data
Israel	ISR	Middle East & North Africa	10,471	14,849.2	-17.3	Mixed model
Jordan	JOR	Middle East & North Africa	42,464.6	24,501.2	26.8	Talent attraction
Kuwait	KWT	Middle East & North Africa	—	22,549.3	—	No data
Lebanon	LBN	Middle East & North Africa	—	16,614.8	—	No data

Libya	LBY	Middle East & North Africa	—	11,007.2	—	No data
Malta	MLT	Middle East & North Africa	1,232.2	1,138.8	3.9	Horizontal internationalization
Morocco	MAR	Middle East & North Africa	18,210	49,327.5	-46.1	Mixed model
Oman	OMN	Middle East & North Africa	3,374.7	15,552	-64.3	Mixed model
Qatar	QAT	Middle East & North Africa	11,042.7	6,765	24	Talent attraction
Saudi Arabia	SAU	Middle East & North Africa	75,040.2	81,568.8	-4.2	Horizontal internationalization
Syria	SYR	Middle East & North Africa	—	51,614	—	No data
Tunisia	TUN	Middle East & North Africa	6,213	21,349.8	-54.9	Mixed model
United Arab Emirates	ARE	Middle East & North Africa	110,091.5	11,491	81.1	Talent attraction
West Bank and Gaza	PSE	Middle East & North Africa	0	26,552.5	-100	Mixed model
Yemen	YEM	Middle East & North Africa	—	26,703.5	—	No data
Angola	AGO	Sub-Saharan Africa	—	14,002.2	—	No data
Benin	BEN	Sub-Saharan Africa	8,464.5	7,009.5	9.4	Talent attraction
Botswana	BWA	Sub-Saharan Africa	1,168.5	2,900.2	-42.6	Mixed model
Burkina Faso	BFA	Sub-Saharan Africa	2,633.2	5,994.8	-39	Mixed model
Burundi	BDI	Sub-Saharan Africa	1,690.5	2,875.5	-26	Mixed model
Cabo Verde	CPV	Sub-Saharan Africa	149	3,529.8	-91.9	Mixed model

Cameroon	CMR	Sub-Saharan Africa	5,320	25,537.7	-65.5	Mixed model
Central African Republic	CAF	Sub-Saharan Africa	—	1,765.8	—	No data
Chad	TCD	Sub-Saharan Africa	—	6,857.2	—	No data
Comoros	COM	Sub-Saharan Africa	0	5,714.8	-100	Mixed model
Côte d'Ivoire	CIV	Sub-Saharan Africa	4,398.2	13,310	-50.3	Mixed model
Democratic Republic of the Congo	COD	Sub-Saharan Africa	2,037	10,867	-68.4	Mixed model
Equatorial Guinea	GNQ	Sub-Saharan Africa	—	1,393.2	—	No data
Eritrea	ERI	Sub-Saharan Africa	—	1,773.8	—	No data
Eswatini	SWZ	Sub-Saharan Africa	—	2,532.3	—	No data
Ethiopia	ETH	Sub-Saharan Africa	—	6,948.2	—	No data
Gabon	GAB	Sub-Saharan Africa	—	7,276.8	—	No data
Gambia	GMB	Sub-Saharan Africa	—	1,745.7	—	No data
Ghana	GHA	Sub-Saharan Africa	13,226.8	14,607.3	-5	Horizontal internationalization
Guinea	GIN	Sub-Saharan Africa	395	8,286.5	-90.9	Mixed model
Guinea-Bissau	GNB	Sub-Saharan Africa	—	3,121.8	—	No data
Kenya	KEN	Sub-Saharan Africa	5,621.3	14,671.8	-44.6	Mixed model
Lesotho	LSO	Sub-Saharan Africa	78.3	2,944.5	-94.8	Mixed model

Liberia	LBR	Sub-Saharan Africa	—	919.2	—	No data
Madagascar	MDG	Sub-Saharan Africa	2,917	4,578.7	-22.2	Mixed model
Malawi	MWI	Sub-Saharan Africa	—	3,502.2	—	No data
Mali	MLI	Sub-Saharan Africa	739.5	9,037.7	-84.9	Mixed model
Mauritania	MRT	Sub-Saharan Africa	328.8	4,645	-86.8	Mixed model
Mauritius	MUS	Sub-Saharan Africa	1,723.3	7,879.5	-64.1	Mixed model
Mozambique	MOZ	Sub-Saharan Africa	672.5	2,731.3	-60.5	Mixed model
Namibia	NAM	Sub-Saharan Africa	3,576.8	5,164	-18.2	Mixed model
Niger	NER	Sub-Saharan Africa	3,180.6	6,221	-32.3	Mixed model
Nigeria	NGA	Sub-Saharan Africa	—	83,482.5	—	No data
Republic of the Congo	COG	Sub-Saharan Africa	—	11,067.8	—	No data
Rwanda	RWA	Sub-Saharan Africa	1,527.5	5,217.8	-54.7	Mixed model
Sao Tome and Principe	STP	Sub-Saharan Africa	—	942.8	—	No data
Senegal	SEN	Sub-Saharan Africa	15,151.2	13,120	7.2	Talent attraction
Seychelles	SYC	Sub-Saharan Africa	0	508.3	-100	Mixed model
Sierra Leone	SLE	Sub-Saharan Africa	—	1,228.5	—	No data
Somalia	SOM	Sub-Saharan Africa	—	6,481.5	—	No data

South Africa	ZAF	Sub-Saharan Africa	43,225.7	10,493.5	60.9	Talent attraction
South Sudan	SSD	Sub-Saharan Africa	—	902.8	—	No data
Sudan	SDN	Sub-Saharan Africa	—	12,980	—	No data
Tanzania	TZA	Sub-Saharan Africa	—	6,846.5	—	No data
Togo	TGO	Sub-Saharan Africa	—	6,305.7	—	No data
Uganda	UGA	Sub-Saharan Africa	—	5,638.3	—	No data
Zambia	ZMB	Sub-Saharan Africa	—	5,216.2	—	No data
Zimbabwe	ZWE	Sub-Saharan Africa	633	18,300.2	-93.3	Mixed model
Afghanistan	AFG	South Asia	0	27,598.2	-100	Mixed model
Bangladesh	BGD	South Asia	—	53,941.8	—	No data
Bhutan	BTN	South Asia	—	4,471.3	—	No data
India	IND	South Asia	44,325.8	326,484	-76.1	Mixed model
Maldives	MDV	South Asia	—	2,822.7	—	No data
Nepal	NPL	South Asia	—	60,921.3	—	No data
Pakistan	PAK	South Asia	—	52,828.7	—	No data
Sri Lanka	LKA	South Asia	1,218.2	20,978.7	-89	Mixed model

Author biography

Antenucci C. Daniel holds a PhD in Biological Sciences and is a professor at the National University of Mar del Plata, Argentina, and a principal researcher at the National Scientific and Technical Research Council (CONICET, Argentina). He is a co-founder of INILAT and LINED, and has extensive experience in international cooperation in higher education, collaborative virtual exchanges, and internationalization strategies in Latin America. His work combines institutional leadership, research, and policy development to promote more inclusive and transformative approaches to the internationalization of higher education.

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