Does theft crime influence international students' choices among destinations? The case of credit mobility studies

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Síntesis

Justificación	This paper aims to analyze the factors that influence international students' choices of a destination city for credit mobility studies in Colombia, placing special attention on theft crime effects. Available statistics from Colombia's Ministry of Education (MEN) show an average increase in the number of credit-mobile international students of 43% per annum between 2010-2017. In 2017, the figures reached 9,080 students, who mostly chose educational providers located in Bogotá (38%) and Medellín (21%), followed by Barranquilla (6.6%), Bucaramanga (5.8%), and Cartagena (5.3%) (MEN, 2021). On the other hand, statistics from the National Police of Colombia −PONAL (2021) in 2017 show an average number of 8.1 theft incidents (per thousand people) in alternative cities for students, raising the question of the potential association between theft crime and credit-mobile students' preferences.
Argumentos centrales	- An increase in the number of theft crime incidents negatively influences the choices of credit-mobile students among city alternatives in Colombia - The hypothesized negative effect of theft crime incidents on students' choices differs between students according to their city of destination. - Increases in the number of academic tourists in Colombia could contribute to achieving the goal of tripling the number of international tourists that visit Colombia per annum, one that helps to alleviate monetary poverty at the regional level in the country, as shown by Camacho Murillo et al. (2024).
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Abstract

This paper analyzes the influence of theme crime on international students' choices among city alternatives in Colombia for credit-mobility studies. The mixed logit model is employed using data from Colombia's Ministry of Education and other statistical sources. Findings show that the probability of choosing a destination city to study credit-mobility programs drops on average by 0.33 percentage points for each one-unit increase in the number of theft crime incidents (per thousand people), although this effect is found to significantly differ between students. The probabilities of choosing Bogota and Medellin are the most sensitive to theft crime incidents (-1.52pp and -0.98 pp reduction, respectively), while the probabilities of choosing Ibague and Armenia are the least affected (-0.04pp and -0.08pp reduction, respectively). The findings provide important initiatives to reduce the effects of theft crime on international students' choices.

Keywords: credit-mobile studies, theft crime, mixed logit model, educational tourism

1. Introduction

In several countries, international students' mobility is a fundamental strategy to increase host economies' income via students' spending (OECD, 2019). The market size of educational tourism was calculated at USD$365.9 billion in 2022, with expectations to grow at 13% per annum until 2030 (GVR, 2024). The economic impact of students' mobility to host countries is greater than that of conventional tourism purposes in most European countries (Rodríguez et al., 2013). Educational tourism is also a strategy to enrich interculturality and international ties between countries (Cant, 2004; Roy et al., 2019), to raise people's capacity to live outside their usual environment (Wilson, 2011), and to promote long-term migration (Brooks & Waters, 2011).

There are two types of international mobility students recognized by the UNESCO-UIS/OECD/EUROSTAT (UOE, 2018). Degree-mobile students are those who enroll in the destination country to graduate from a tertiary education program (bachelor, 1-year master,

2-year master, or PhD). Credit-mobile students, on the other hand, pursue academic credits (not qualification) in the host country, although they are enrolled in a tertiary education program in their home country. The latter type of student is analyzed in this paper to contribute to the scarce number of studies recorded in the literature, primarily due to data limitations (Van Mol & Ekamper, 2016), and the lack of agreements regarding the scope of educational tourism (McGladdery & Lubbe, 2017).

International Credit-mobility studies are carried out by overseas students who travel for short periods for two possible activities: to study and/or to work (Eurostat, 2015). Study activities include semester exchange, short courses, language courses, missions, events (workshops, seminars, conferences), and clinical rotation. Work activities include internship, traineeship, or placement (Eurostat, 2015). Credit-mobile students (also called exchange students) are classified as educational tourism travelers whose academic activities last less than 1 year, and their main purpose is other than to be employed in the destination (Martínez, et al., 2013; UNWTO, 2010). Educational tourism belongs to youth tourism, which includes tourists guided by the desire to know new cultures, build life experiences, and benefit from learning opportunities outside their usual environment (UNWTO, 2011).

In a plethora of tertiary educational institutions around the world, students have diverse destination alternatives to take academic credits. In the European Union, for instance, students can take credits in educational institutions from any member state under the Erasmus Program. Statistics show that the number of credit mobile graduates from the EU in 2021 was 387 thousand, being France and Germany the destinations that students prefer the most with 45% and 18% share of total figures, respectively (Eurostat, 2023). In 2020, the United States of America was the most popular destination for credit-mobile students globally, hosting 23% of total students, followed by the United Kingdom (11%) and France (10%) (OECD, 2022).

International students decide to take credits abroad based on signed agreements between tertiary education entities. Tomasi et al. (2020) argue that educational institutions must consider the tourism components in a student's trip to improve the student's learning goals in the destination. Educational tourism is a bridge between traditional tourism (cultural and recreational), education activities, and youth tourism (Pereira et al., 2021). After deciding to take credits abroad (participation choice), credit-mobile students usually follow three systematic steps based on Lee (2013) and Mazzarol and Soutar (2002). First, students choose the country to visit among a set of alternatives. Second, students choose a city within the selected country. And third, students choose the university to study.

Students make their destination choice among alternatives based on diverse factors and preferences (Cubillo et al., 2006). Credit-mobile students consider university-associated characteristics, such as service quality (Rahman et al., 2017), reputation, and cultural diversity (Campos & Corcho, 2019; Lesjak et al., 2015; Kosztyán et al., 2023); spatial characteristics, such as cultural and/or physical proximity (Eurostat, 2023; OECD, 2019), and travel costs (Rodríguez et al., 2012); regional mobility agreements, such as Erasmus (Cerdeira Bento, 2014); and socioeconomic characteristics, including gender and students' country of origin (Eurostat, 2023). Students' family economic capacity influences the decision-making of credit-mobile students, too (Rodríguez et al. 2012), as for degree-mobile students occur (Lupi & Ordine, 2009; Ortiz et al., 2015). Students' age can be

skipped in studies on credit mobile students' preferences, as educational tourism is linked to youth tourism (Voleva-Petrova 2020), which covers a specific niche of people between 16-29 years of age (UNWTO, 2011).

Based on Lancaster's (1966) theory of consumer demand, diverse destination attributes or characteristics can influence the choices of credit-mobile students among alternatives besides academic goals. These characteristics are non-economic (pull) factors (Cerdeira Bento, 2014) linked to traffic, weather Rahman et al. (2017), and nature-based attributes (Lesjak et al., 2015) in the destination. It could also be linked to man-made attractions as studies on domestic tourism have confirmed (Camacho-Murillo et al., 2021). Among push and pull factors that influence international students' decisions (M. S. Lam et al., 2011; Teixeira, M. C. F. L., 2021; Dreshaj et al., 2022), theft crime is of primary interest in this paper, as security-associated factors can inevitably affect international travelers during their stay in the destination (Lepp and Gibson, 2003; Mazzarol and Soutar, 2002). Theft crime is "the unauthorized taking of the property of another with the intent to deprive them of it permanently" and includes larceny, and robbery as the most common (Justia, 2024).

The critical association between theft crime and credit-mobile students' preferences among destination alternatives has been little investigated in the literature, raising attention to this study. A close study is Kosztyán et al. (2023), who analyze the Erasmus mobility exchange program through the gravity model and find that public safety significantly affects students' decision to participate in the program. Zou and Yu (2022), in a qualitative study, analyze the social construction of tourists' perception of safety towards Chinese destinations from a list of popular web pages (including TripAdvisor and Airbnb), online travel agencies (Ctrip, Qunar), and travel experience-sharing platforms (Mafengwo). With 3,140 reviews that detail travel itineraries and describe multiple aspects of tourists' safety experiences, Zou and Yu (2022) conclude that the management of safe tourism environments is fundamental to incentivizing youth tourism.

This paper aims to analyze the factors that influence international students' choices of a destination city for credit mobility studies in Colombia, placing special attention on theft crime effects. Available statistics from Colombia's Ministry of Education (MEN) show an average increase in the number of credit-mobile international students of 43% per annum between 2010-2017. In 2017, the figures reached 9,080 students, who mostly chose educational providers located in Bogotá (38%) and Medellín (21%), followed by Barranquilla (6.6%), Bucaramanga (5.8%), and Cartagena (5.3%) (MEN, 2021). On the other hand, statistics from the National Police of Colombia −PONAL (2021) in 2017 show an average number of 8.1 theft incidents (per thousand people) in alternative cities for students, raising the question of the potential association between theft crime and credit-mobile students' preferences.

This study analyzes two main hypotheses. First, whether an increase in the number of theft crime incidents negatively influences the choices of credit-mobile students among city alternatives in Colombia. Second, whether the hypothesized negative effect of theft crime incidents on students' choices differs between students according to their city of

destination. The mixed multinomial logit model will be applied in this study as an important contribution to analyses on credit mobile students' preferences.

This research is of fundamental interest to majors, educational entities, and the national government of Colombia, as it can shed light on initiatives to address the effects of this social problem on educational tourism. The current government of Colombia is committed to almost tripling the number of international tourists that visit Colombia per annum (from 4.5 million before the Covid-19 pandemic to 12 million by 2026) while reducing the production and exports of fossil fuels (Peña-Castaño, 2023). Certainly, increases in the number of academic tourists in Colombia could contribute to this goal; one that helps to alleviate monetary poverty at the regional level in the country as shown by Camacho Murillo, et al. (2024). The rest of the paper provides, in section two, the methodology for hypothesis analyses; in section three, the results are analyzed; and section four provides conclusions and suggestions.

2. Model and Data

This section shows the model and data used to analyze the factors that influence credit-mobile international students' choices among destination cities in Colombia, including theft crime. The Mixed Logit model is employed (McFadden & Train, 2000), which is an extension of McFadden's (1973) conditional choice model used to capture consumers' heterogeneity around the estimated coefficients of alternative-specific variables (Train, 1998). The Mixed Logit model has been applied to tourism choice/demand analyses in which there is a correlation between alternatives (Nicolau, 2010; Camacho-Murillo, et al., 2021), allowing the violation of the independence of irrelevant alternatives (IIA) assumption (Train, 2009).

The probabilistic function of the Mixed Logit model takes the following form:

$$P_{ni} = \int \left(\frac{e^{v_{ni}}}{\sum_j e^{v_{nj}}} \right) \cdot f(\beta_n | b, \eta_n) \, d\beta_n \tag{1}$$

Equation (1) shows that the probabilities in a mixed logit model are the integrals of standard logit probabilities (the first part of the equation) over a density function of parameters (the second part of the equation) that can adapt diverse distributions, including normal, log-normal, gamma, among others (Train, 2009). The response variable in this study, P_{ni}, accounts for international students' probability of choosing an alternative city (i) within Colombia to study a credit mobility program. These city alternatives are clustered by natural regions (Procolombia, 2024); a situation that warns the inevitable correlation between alternatives for students, and the violation of the IIA assumption as a result. The mixed logit model deals with these correlations. Data are sourced by Colombia's Ministry of Education (MEN, 2021) and show the census of international students who choose a tertiary education institution to get academic credits.

The utility function of credit-mobile students (U_{ni}) is:

$$U_{ni} = V_{ni} + \epsilon_{ni} \tag{2}$$

Where V_{ni} accounts for observable covariates that influence the student (n)' choice among city alternatives (i), including spatial variables, case-specific characteristics ($z_i A)'$, alternative-specific attributes ($X_{ni}\beta$), and alternative-specific intercepts (c_i). The attributes of alternatives are linked to "pull factors" that attract tourists (Dann, 1977), including educational travelers. The variable ϵ_{in} is the idiosyncratic error term (i.i.d extreme value over individuals and alternatives) that account for unobservable characteristics by the researcher (Train, 2009).

The set of variables included in this paper is presented in Equation (3) and explained in detail below.

$$V_{ni} = distance_{ic} + z_i A' + X_{ni}\beta + c_i \tag{3}$$

V_{ni} is the student's observed utility (a latent variable); $distance_{ic}$ is a spatial variable that accounts for the travel distance from Bogota (where the largest international airport of Colombia is located) to the alternative city i (in km). The variable is sourced by lasdistancias.net. Preliminary analyses show a negative exponential functional form between $distance_{ic}$ and P_{in}, which is modeled through a log-normal distribution.

Alternative-specific variables are included in z_i as follows: *temperature* accounts for the average temperature of alternative cities split into three categories: hot (the temperature is above 24°C), warm (the temperature is between 17°C and 24°C), and cold (the temperature is below 17°C), being the latter category the control group. This variable is drawn from the Institute of Hydrology, Meteorology, and Environmental Studies of Colombia (IDEAM, 2024a). *precipitation* is the annual accumulation of rain in each city alternative (in mm) from January to December. This factor is sourced by IDEAM (2024a). *man-made* are a category of venues and sites that can influence tourists' decision-making, including restaurants, bars, theme parks, museums, and libraries (Swarbrooke, 2002; Camacho-Murillo, et al., 2021). It is measured as the per capita number of man-made attractions for leisure and recreational activities in city alternatives. This standardization allows us to avoid high correlations between man-made attractions with other explanatory variables, and to capture man-made attractions density in the destination. The data are taken from Colombia' s yellow pages (paginasamarillas.com.co).

The variable *terrorism* accounts for the number of terrorist incidents in the set of alternative cities, which includes assassination, hijacking, kidnapping, bombing, and armed assault. Data are sourced by the National Consortium for the Study of Terrorism and Responses to Terrorism (START, 2021). *theft* is the core explanatory variable and includes the total number of theft crime incidents (per thousand people) in the city options against civilians with no weapons, cold or blunt weapons, and guns. The statistics are sourced by the National Police of Colombia (PONAL, 2021). It is expected a reduction in the preferences of students for a destination city as the number of theft crime incidents (per thousand people) in that city increases. Risk-associated factors, including theft crime, are in tourists' minds at the time of making their trip choice (Lepp and Gibson, 2003). Significant differences between students are, however, foreseen around the mean effect of theft crime on students' choices among destination cities, as novelty-seeking tourists are likely to tolerate higher levels of risk in the destination (Lepp and Gibson, 2003).

The case-specific variables included in this paper, sourced by MEN (2021), are the following: *region*, which accounts for students' region of origin, and is split into 4 categories: North America (Canada, United States of America, and Mexico); South America (Peru, Ecuador, Brazil, Argentina, Chile, Venezuela, Bolivia, Paraguay, Uruguay, and Guyana Francesa); Western Europe (France, Germany, Netherlands, Switzerland, Belgium, and Austria); and Other Countries as the control group (includes the remaining group of countries). The variable *mobility* accounts for the type of mobility program chosen by the students among the following options: internships/traineeships, short courses, Spanish courses, academic missions, semester exchange, and medical rotation. Academic events are taken as the control group. The variable *tertiary* identifies the type of tertiary education entity chosen by the student, whether private or public. The latter is the control group.

Descriptive statistics from MEN's (2010) data show an average increase in the number of credit-mobile students in Colombia of 45% per annum between 2010-2017. The highest number alongside the studied period lies in 2017 with 9,553 students, whose main destination cities were Bogotá (42.4%), Medellin (20.3%), Cartagena (7.3%), Barranquilla (5.1%), and Bucaramanga (4%) (Figure 1). In this study, 14 cities are taken as the main set of city alternatives for credit-mobile students in the final sample (out of 38 non-empty options), accounting for 95.5% of total students in 2017. The reduction of city alternatives shrinks the computer time to get the estimated results, which is usually a drawback in Mixed logit models (Hensher and Greene, 2002)

Figure 1.
**Students' choices among destination cities in Colombia, 2017 (% share)**
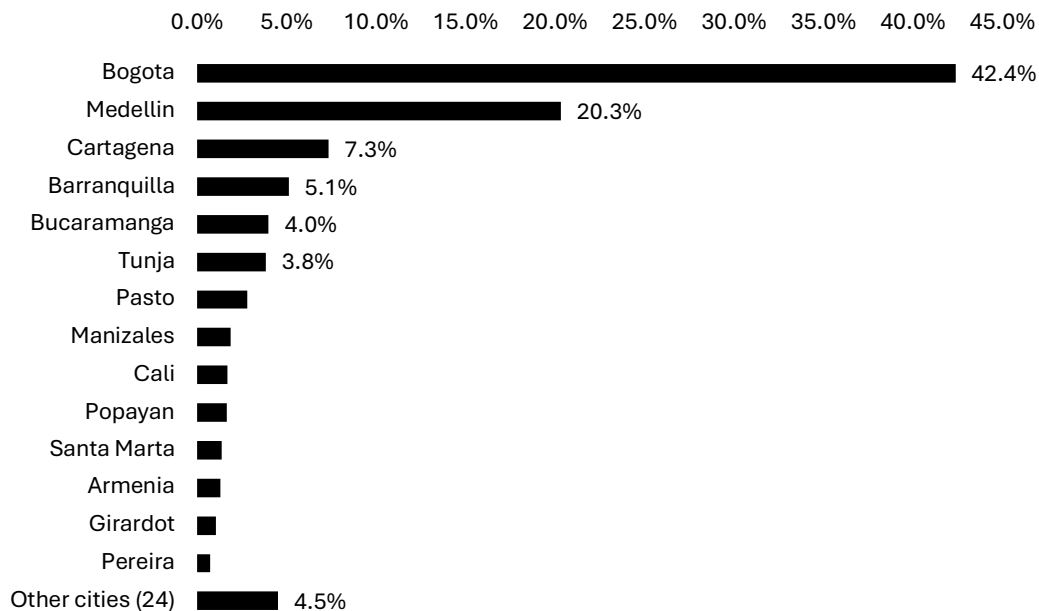
Source: authors' elaboration based on data from MEN (2021)

Figure 2 shows that the main source markets of credit-mobile students to Colombia in 2017 by worldwide regions are North America (35% of total share), South America (26%), and Western Europe (18%). The main sources of students by country of origin are Mexico

(26%), Peru (10%), France (9%), USA (8%), Germany (7%), Ecuador (5%), and Brazil and Argentina (4% each).

Figure 2.
Students' region of origin, 2017 (% share)
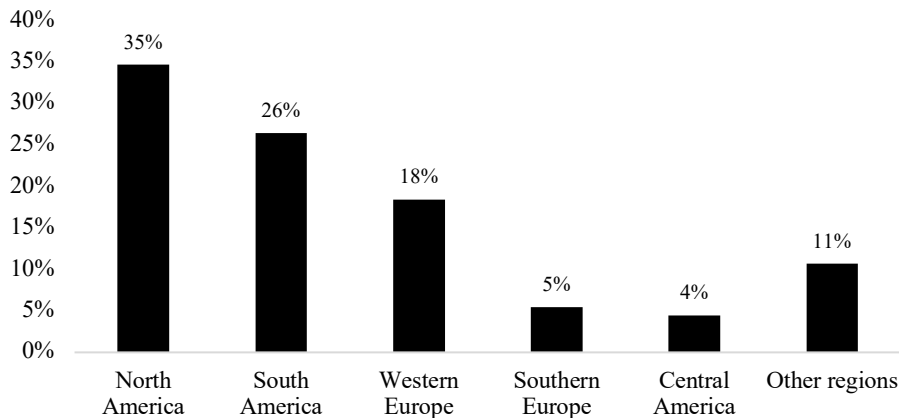
Source: authors' elaboration based on data from MEN (2021)

The primary credit-mobility programs chosen by international students in Colombia in 2017 are internship/traineeships (34%) and short courses (27%). Spanish courses and academic missions account for 10% each, and semester exchange and academic events make up 9% and 8%, respectively (Figure 3).

Figure 3.
**Types of mobility programs chosen by students, 2017 (% share)**
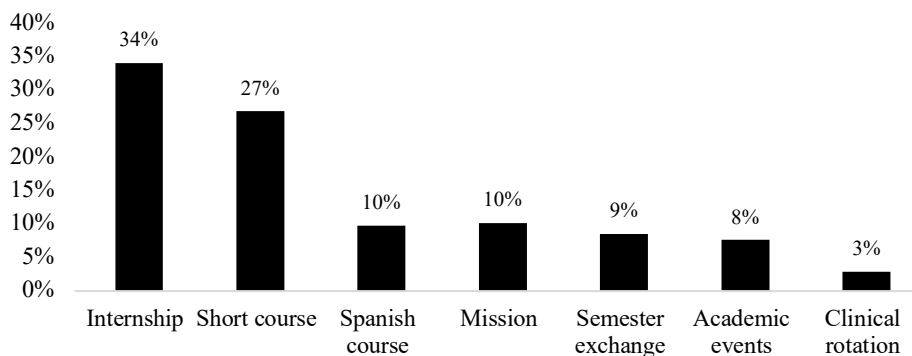
Source: authors' elaboration based on data from MEN (2021)

One of the factors that is likely to influence the choices of credit-mobile students among city alternatives in Colombia is the level of personal risk from theft crime actions against civilians. International tourists, including students, are likely to judge the risk of crime in the potential destination based on statistics or reports provided by media companies (Kapuściński and Richards, 2016). These reports, in many cases, overestimate the real risk of traveling to a destination (Pizam and Mansfeld, 2006), or transmit wrong inform on the real risk due to data manipulation (Restrepo, 2018; Camacho-Murillo, 2019). Statistics on theft crime in Colombia are drawn from the National Police of Colombia −PONAL (2021) and show an average of 8.1 theft incidents per thousand people in the analyzed city options, in the year 2017 (Figure 4). Pasto and Bogota had the highest

number of incidents (13.4 and 10.5 incidents per thousand of the population, respectively), while Armenia, Manizales, and Cartagena, had the lowest statistics (5.1, 4.0, and 3.7 incidents per thousand of the population, respectively).

Figure 4.
Theft crime incidents per 1000 people, 2017
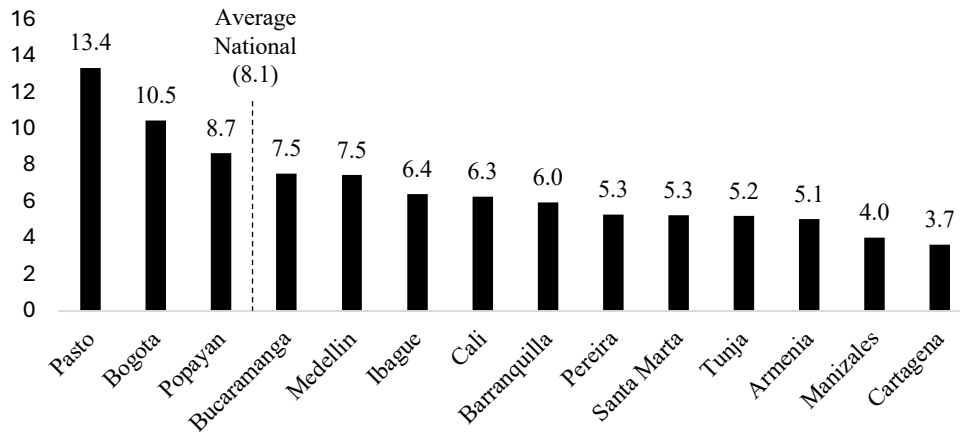
Source: authors' elaboration based on data from PONAL (2021)

Most theft incidents were perpetrated against people (65%), followed by shops (23%), and housing property (13%); 58% of the incidents were perpetrated against men; and out of 100 incidents recorded, 49 were committed with no weapons, 33 with cold/blunt weapons, and 17 with guns.

3. Results

This section presents the estimated results in three parts. First, results from the Mixed Logit model evaluating alternative-specific factors that influence credit-mobile students' choices among cities in Colombia, especially theft crime incidents, are reported in Table 2. The findings from the Conditional Logit model (with and without case-specific variables) are also reported in Table 2 for robustness check. The direction and not the magnitude of estimated coefficients is of primary interest in this first analysis. Second, the average marginal effects of changes in theft crime incidents on students' choices are presented in Table 3. Third, the directions of coefficients of case-specific variables are presented in Table 4.

Effects from alternative-specific variables

Results in columns (i) to (iii), Table 2, show similar directions for the effects of each alternative-specific variable on students' choices, except for the effect of distance using the Conditional Logit model without case-specific variables. The Mixed Logit model shows the best goodness of fit when the Log pseudolikelihood test is evaluated (the result is the highest); therefore, the Mixed Logit model is chosen for the following analyses.

Estimated parameters from the Mixel Logit model, column (iii), are all statistically significant at the 1% level. The outcome for *distance* shows that credit-mobile international

students are less likely to choose a destination city if the distance to that city from Bogota increases. This is likely to occur as Bogota has the largest international airport in Colombia, which facilitates students' travel to other regions within Colombia or to their hometowns. The standard deviation of the coefficient of distance (Sd *distance*) is, however, statistically significant at the 1% level, suggesting the presence of significant heterogeneity between students around the mean effects of distance on students' city choices. Therefore, some students prefer cities located far away from Bogota, while another group prefers Bogota or cities near Bogota.

The estimated parameters of the categorial variable *temperature* show that international students are less likely to choose warm and hot cities as compared to cold cities within Colombia. Credit mobile students that visit Colombia are mainly attracted by Bogota and Medellin, where the average temperatures (maximum and minimum) fluctuate between 6°C and 19.7°C for Bogota, and between 17.2°C and 27.2°C for Medellin (IDEAM, 2024a). Bogota has the lowest average temperature of the studied cities (14°C) together with Pasto (IDEAM, 2024b). Jisung et al. (2020) found that hot weather tends to affect students' ability to learn; an issue that could influence credit-mobile students in their choices of a city within Colombia.

The result for *precipitation* shows that the representative credit-mobile international student is more likely to choose cities in which greater levels of rain are recorded. Notwithstanding, the precipitation patterns in Colombia are changeable -due to oceanic and atmospheric processes (Montealegre, 2009), which could alter students' choices in other academic semesters. The precipitation levels recorded in 2017 in Bogota, Medellin, Cartagena, and Santa Marta were 798mm; 1,635mm; 1,030mm; and 880mm per annum, respectively (IDEAM, 2024a).

The findings for *man-made* show, at the 1% significance level, that students' preferences for a destination city are associated with an increase in the relative number of man-made attractions in that destination (per thousand people). This result identifies the importance of leisure-related venues for credit-mobile students. The average per capita number of man-made attractions in the alternative cities is 2,547; Bogota and Medellin (the most prefer destinations for credit-mobile studies) have the largest number of per capita venues for leisure and recreation (4,136 and 2,858, respectively), followed by Bucaramanga, Cartagena, and Cali (830, 826, and 760, respectively).

The estimated result for *terrorism* shows a positive association between terrorist acts and students' preferences among destinations. Bogota, Cali, and Medellin had 3, 4, and 1 terrorist-associated incidents, respectively, in the study year. The remaining set of options did not have any terrorist incident. Arguably, the low number of terrorist events that the studied cities had in 2017, which mirrors the significant reduction of terrorist incidents in Colombia in the last 24 years (as compared to the figures reported in the 1990s), may suggests that young tourists are not aware of terrorism in Colombia.

The core findings lie in the estimated coefficient of *theft*, which shows the expected sign in this study as stated in the first hypothesis. Credit mobile international students are less likely to choose a city, among the set of options, if a greater number of theft crime incidents (per thousand people) is recorded. This result is in line with Åmo & Doornich

(2023), who found through a survey that Norwegian students consider safety as a pull factor when choosing a destination for credit mobility studies. Similarly, the study by Kosztyán et al. (2023) and Zou and Yu (2022) support our results showing that public safety is fundamental for credit mobile students to travel within Europe (through the Erasmus program) and to China.

Table 2.

Results from the conditional logit model and the mixed logit model

	Conditional Logit		Mix Logit Model
	Without case-specific variables (i)	With case-specific variables (ii)	With case-specific variables (iii)
distance	0.20*** (.014)	-0.64*** (.189)	-4.91*** (.170)
temperature			
hot	-3.39*** (.085)	-14.59*** (.189)	-14.15*** (1.97)
warm	-5.70*** (.146)	-23.94*** (2.46)	-32.29*** (4.70)
precipitation	.0021*** (.000006)	0.014*** (1.61)	0.014*** (.002)
man-made	4.41*** (.097)	22.21*** (2.11)	29.19*** (4.08)
terrorism	.961*** (.023)	5.11*** (.393)	5.54*** (.790)
theft	-2.63*** (.115)	-34.55*** (3.50)	-5.22*** (.752)
Sd (*distance*)			4.36e-06*** (1.6e-06)
Sd (*theft*)			0.0216*** (0.0001)
Case-specific variables			
region	No	Yes	Yes
mobility	No	Yes	Yes
tertiary	No	Yes	Yes
Observations	121,842	121,842	121,842
Integration points			50
Cases	8,703	8,703	8,703
Log pseudolikelihood	-16836	-13430	-13361

***, **, and * statistically significant at 1%, 5%, and 10%, respectively. Robust standard errors are in parentheses.

The standard deviation around the mean coefficient of *theft* is, notwithstanding, statistically significant at the 1% critical value, as expected for the second hypothesis. This finding suggests that, while there is a group of credit-mobile students aware of personal security issues associated with theft crime, there is another group that is not. The last group of students is likely to be less risk-averse to theft crime incidents in the destinations, mainly due to two reasons. First, they are familiar with theft crimes in their hometowns, so they know how to reduce the risk in the visited city. Second, they know the sites they can visit in the destination while living there, as well as the time to do it (this information is likely provided by authorities).

Analyses from marginal effects next allow us to determine the magnitude of theft crime effects, as well as the city alternatives for students with the largest negative effects from theft incidents.

Table 3.
Average Marginal Effects of Theft Crime

City	dy/dx	Std. errors Delta-method	z
Armenia	-.0814***	.014	-5.77
Barranquilla	-.4155***	.062	-6.64
Bogota	-1.525***	.234	-6.52
Bucaramanga	-.2712***	.038	-6.96
Cali	-.2626***	.041	-6.40
Cartagena	-.4186***	.067	-6.23
Ibague	-.0378***	.007	-5.11
Manizalez	-.1338***	.021	-6.21
Medellin	-.9805***	.151	-6.47
Pasto	-.1232***	.019	-6.29
Pereira	-.0928***	.016	-5.54
Popayan	-.0431***	.008	-4.97
Santa Marta	-.0872***	.015	-5.81
Tunja	-.2475***	.038	-6.46
Mean	-0.33715		

Note: dy/dx are figures in percentage points
*** statistically significant at 1%

Marginal effects of theft crime

Table 3 summarizes the average marginal effect of increases in theft crime on credit-mobile students' preferences among city alternatives in Colombia. Average marginal effects are the mean of partial derivatives of the response variable (the probability of choosing a destination city among the options) with respect to each analyzed covariate (theft crime incidents) (StataCorp, 2021). The mean shows that a one-unit increase in the

number of theft crime incidents (per thousand people) leads to an average decrease in the probability of choosing a city alternative by -0.33 percentage points (pp), ceteris paribus.

The most sensitive city alternatives to increases in the number of theft crime incidents are Bogota (-1.52pp) and Medellin (-0.98pp), followed by Barranquilla and Cartagena (-0.41pp each); and the least sensitive alternatives to increases in the number of theft crime incidents are Ibague (-0.037pp), Popayan (-0.043pp), and Armenia (-0.081pp). The significant effect of *theft* on credit-mobile students' preferences for these cities is an issue to be considered by majors in the justification of public resources for tackling personal risk-associated events.

Effects from Case-specific variables

Table 4 shows changes in the direction of the probability of studying a credit-mobility program in any alternative city (compared to Bogota as the control group) from three main characteristics. First, if the university where overseas chooses to study is private or public (the last one is the control group). Second, if the international students travel from North America, South America, or Western Europe (as compared to other international regions as the control group). Third, if the students choose internship/traineeship, short courses, Spanish courses, academic missions, semester exchange, or clinical rotation as the credit-mobility program while in the destination city (as compared to the choice of academic events as the control group).

The outcomes in Table 4, *Type of university*, show that, compared to public universities in Bogota, it is more likely that credit-mobile international students choose to study in a private university in Bucaramanga, Cali, Pasto, and Barranquilla; while it is less likely they study in a private university in Armenia, Pereira, Manizales, Ibague, Medellin, Cartagena, Santa Marta, and Popayan. The outcomes are statistically significant at the conventional levels, except for Pasto.

Region of origin in Table 4 shows that, compared to credit-mobile students who travel to Bogotá from other international regions, it is more likely to travel from North America to all cities (except for Santa Marta); from South America to Armenia, Pereira, Medellin, Tunja and Bucaramanga (within the Andean region), and to Pasto (within the Pacific region); and from Western European countries to Pereira, Barranquilla, Cali, and Pasto. These are the alternative cities that provide statistically significant results at the conventional critical values.

Finally, *Type of mobility* in Table 4 shows that, compared to international credit-mobility students who travel to Bogota for academic events, it is more likely to travel for internship/traineeship to Armenia, Manizales, Barranquilla, Santa Marta, and Popayan; for short courses to Armenia, Manizales, Barranquilla, Santa Marta, and Popayan; for Spanish courses to Armenia and Manizales; for academic mission to Armenia, Pereira and Barranquilla; for semester exchange to Armenia, Tunja, Bucaramanga, Cali, Popayan, Barranquilla, and Santa Marta; and for Clinical rotation to Armenia, Pereira, Manizales, Popayan, and Santa Marta. The city alternatives not mentioned in this analysis show results that are not statistically significant at ant conventional level.

Table 4.

Case-specific variables (Direction of effects)

	Alternative cities to study a credit-mobility program (Bogota is the control group)												
	Andean Region							Pacific Region			Caribbean Region		
	Armenia	Pereira	Manizales	Ibagué	Medellin	Tunja	Bucaramanga	Cali	Popayan	Pasto	Cartagena	Barranquilla	Santa Marta
Type of university [1]													
Private	-	-	-	-	-	+[N]	+	+	-	+	-	+	-
Region of origin [2]													
North America[a]	+	+	+	+	+	+	+	+	+	+	+	+	-
South America	+	+	+[N]	-[N]	+	+	+	-	-	+	-	+[N]	-
Western Europe	+[N]	+	-[N]	-	+[N]	-	-[N]	+	-[N]	+	-	+	-
Type of mobility [3]													
Internship	+	-	+	-[N]	-	-	-[N]	+[N]	+	-	-	+	+
Short course	+	-	+	-	-	-	-	+[N]	+	-	-[N]	+	+
Spanish course	+	-	+	-	-[N]	-	-[N]	+[N]	-	-	-	-[N]	-
Mission	+	-	+	-[N]	-	-	-	+[N]	+[N]	-[N]	-	+	+
Semester exchange	+	-	-	-	-	+	+	+	+	-	-[N]	+	+
Clinical rotation	+	+	+	-	-	-	-	-[N]	+	-	-	+[N]	+

N: not significant at any conventional critical value; Green: Andean region; Orange: Pacific region; Blue: Caribbean region

The Control group of case-specific variables: [1]public university; [2]other regions; and [3]academic events.

[a] North America: Canada, United States of America, and Mexico; [b] South America: Peru, Ecuador, Brazil, Argentina, Chile, Venezuela, Bolivia, Paraguay, Uruguay, and Guyana Francesa; [c] Western Europe: France, Germany, Netherlands, Switzerland, Belgium, and Austria

4. Conclusion and suggestions

This paper analyses the factors that influence the choices of credit-mobile international students among destination cities using the Mixed Logit model. The emphasis is on the effects of theft crime on students' preferences among city alternatives in Colombia. Key findings indicate an average decrease in the probability of choosing a destination city in Colombia for credit mobility of 0.33 percentage points, as the number of theft crime incidents increases by one unit (per thousand people). Bogota and Medellin are the most affected alternatives with decreases in students' preferences for these destinations of -1.52 and -0.98 percentage points, respectively; while Ibague and Popayan are the least affected with decreases of -0.037 and -0.043 percentage points, respectively. Further findings show statistically significant heterogeneity around the mean effect of theft crime incidents on credit-mobile students' preferences. This shows that, while a group of students is more averse to personal risk events of theft crime in the optional cities of Colombia, there is another group of educational travelers that is not.

Theft crime events tend to undermine the attributes that the cities of Colombia can provide for international students' experience, including the Sanctuary of Monserrate in Bogota, Botero Plaza and aerial lifts in Medellin, salsa shows and the Cristo Rey monument in Cali, the coffee landscape in the coffee region (Armenia, Pereira and Manizales), the Sanctuary of Las Laja in Pasto, the beaches and historical heritage in Santa Marta and Cartagena, among other tourism attractions. Therefore, the local and central governments are encouraged to work on initiatives aimed at reducing the number of theft crime incidents in the main cities of Colombia, while enhancing the attributes of visited cities by international students.

Educational providers are also encouraged to collaborate with the police department on initiatives to prevent international students from theft crimes. Permanent information for international students through reports about the georeferentiation of crime in each city area (localities and neighborhoods) is a key strategy. Also, recommendations on what to do and who call to if involved in a theft crime event, can be important strategies to promote in each city. Furthermore, educational providers could appeal to the strategy of godfathers within the universities, in which local students provide permanent support and guidance to international students while living in the cities.

Future studies could analyze the standard deviations of other alternative-specific variables' estimated coefficients to test for statistically significant sources of heterogeneity. Further studies could also interact *theft* with case-specific and/or alternative-specific variables to identify the sources of heterogeneity around the mean effect of theft crime on students' choices. Notwithstanding, the success of these and other endeavors will significantly depend on the power of computers used to run the mixed logit model or the multinomial probit model.

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