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REVISTA TURISMO y SOCIEDAD

DOES THEFT CRIME INFLUENCE INTERNATIONAL STUDENTS' CHOICES AMONG DESTINATIONS? THE CASE OF CREDIT-MOBILITY STUDIES

¿INFLUYE EL DELITO DE ROBO EN LA ELECCIÓN DE DESTINO DE LOS ESTUDIANTES INTERNACIONALES? EL CASO DE LOS ESTUDIOS DE MOVILIDAD CREDITICIA

Abstract

This paper examines the impact of crime on international students' selection of Colombian cities for credit-mobility studies. The mixed logit model is employed using data from Colombia's Ministry of Education and other statistical sources. The findings indicate that the probability of selecting a destination city for studying credit-mobility programs declines by an average of 0.33 percentage points for every one-unit increase in the number of theft crime incidents per thousand people. However, this effect varies significantly between students. The probabilities of choosing Bogotá and Medellín are most sensitive to theft crime incidents (-1.52pp and -0.98pp reduction, respectively), while the probabilities of choosing Ibagué and Armenia are least affected (-0.04pp and -0.08pp reduction, respectively). The findings suggest that international students may be influenced in their decisions by the prevalence of theft and related crimes.

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

Resumen

Este artículo analiza la influencia del crimen de robo en las elecciones de los estudiantes internacionales entre las alternativas de ciudades en Colombia para estudios de movilidad crediticia. Se emplea el modelo logit mixto utilizando datos del Ministerio de Educación Nacional de

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Colombia y otras fuentes estadísticas. Los resultados muestran que la probabilidad de elegir una ciudad de destino para estudiar programas de movilidad académica disminuye en promedio 0,33 puntos porcentuales por cada aumento de una unidad en el número de incidentes de delitos de robo (por cada mil personas), aunque se observa que este efecto difiere significativamente entre los estudiantes. Las probabilidades de elegir Bogotá y Medellín son las más sensibles a los incidentes de delitos de robo (reducción de -1,52 pp y -0,98 pp, respectivamente), mientras que las probabilidades de elegir Ibagué y Armenia son las menos afectadas (reducción de -0,04 pp y -0,08 pp, respectivamente). Los resultados ofrecen sugerencias para reducir los efectos de los delitos de robo en las elecciones de los estudiantes internacionales.

Palabras clave: estudios de crédito móvil, delitos de robo, modelo logit mixto, turismo educativo

1. Introduction

In several countries, international students' mobility is a fundamental strategy to increase host economies' income via students' spending (Organisation for Economic Co-operation and Development [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 (Gran View Research, 2024). The economic impact of students' mobility to host countries is generally greater than that of conventional tourism purposes in most European countries (Rodríguez et al., 2013). Educational tourism is a strategy that fosters intercultural exchange and strengthens international relations between nations (Cant, 2004; Roy et al., 2019). It also enhances individuals' capacity to adapt to new environments (Wilson, 2011), and promotes long-term migration (Brooks & Waters, 2011).

According to the UNESCO-UIS/OECD/EUROSTAT (UOE, 2016), there are two categories of international mobility students. Degree-mobile students are individuals who enroll in the host country to pursue a tertiary education program, which can be a bachelor's degree, a one-year master's degree, a two-year master's degree, or a Ph.D. Conversely, credit-mobile students seek academic credits in the host country, independent of their enrollment status in a tertiary education program in their home country. This paper analyzes the latter type of student to contribute to the limited 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 conducted by overseas students who travel for brief periods for two possible reasons: 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. According to Eurostat (2015), potential work activities include internships, traineeships, or placements. Credit-mobile students, also known as exchange students, are classified as educational tourism travelers whose academic activities last less than one year. Their primary objective is not employment in the destination (Martínez-Roget et al., 2013; World Tourism Organization [UNWTO], 2010). Educational tourism falls under the umbrella of youth tourism, which encompasses

travelers motivated by a desire to explore new cultures, build life experiences, and benefit from learning opportunities beyond their usual surroundings (UNWTO, 2011).

A wide variety of tertiary educational institutions around the world offer students diverse destination alternatives for taking academic credits. Within the European Union, the Erasmus Program facilitates the transfer of credits among educational institutions, enabling students to pursue their studies in any member state. According to statistics from Eurostat (2023), France and Germany were the preferred destinations for EU credit mobile graduates in 2021, with 45% and 18% of the total share, respectively. In 2020, the United States of America was the most popular destination for credit-mobile students globally, hosting 23% of the total student population. It was 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 can be defined as a combination of traditional tourism (cultural and recreational), educational activities, and youth tourism (Pereira et al., 2021).

After determining that credits would be obtained abroad, credit-mobile students typically follow three systematic steps, as outlined by Lee (2014) and Mazzarol and Soutar (2002). First, students select the country to visit from a set of alternatives. Second, students select a city within the selected country. Third, students select the university to which they wish to attend.

According to statistics from Colombia's Ministry of Education (MEN), the number of credit-mobile international students has increased an average of 43% per year between 2010 and 2017. In 2017, the number of students reached 9,080, with the majority choosing educational providers located in Bogotá (38%) and Medellín (21%), followed by Barranquilla (6.6%), Bucaramanga (5.8%) and Cartagena (5.3%) (MEN, 2021). In contrast, statistics from the National Police of Colombia (PONAL) from 2017 show an average of 8.1 theft incidents per thousand people in alternative cities for students. This prompts the question of whether the potential risk of theft influences credit-mobile students' decision-making among the alternative cities in Colombia.

The objective of this paper is to analyze the factors that influence international students' choices of a destination city for credit mobility studies in Colombia, with a particular focus on the impact of crime. The study analyzes two main interlinked hypotheses. First, the study will examine whether an increase in the number of theft crime incidents negatively influences the choices of credit-mobile students among city alternatives in Colombia. Second, we will examine whether the hypothesized negative effect of theft crime incidents on students' choices differs between students according to their destination. The mixed multinomial logit model for microdata is applied for hypothesis analyses, which significantly contributes to studies on credit-mobile students' preferences.

This paper 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

security-associated problems on educational tourism. The current government of Colombia is committed to increasing the number of international tourists that visit the country annually from 4.5 million before the COVID-19 pandemic to 12 million by 2026. This initiative is in line with the government's broader commitment to reduce the production and exports of fossil fuels (Peña, 2023). Undoubtedly, an increase in the number of academic tourists in Colombia could contribute to this objective, as demonstrated by Camacho-Murillo et al. (2024). This would help alleviate monetary poverty at the regional level in the country.

The remainder of the paper presents a concise literature review in Section Two, addressing the correlation between theft, crime, and credit preferences among mobile students. Section Three details the methodology employed for hypothesis analyses. Section Four delves into the results, while Section Five concludes with recommendations and suggestions.

2. Brief Literature Review

Researchers have identified a variety of factors that influence the destination choices of credit-mobile students among available alternatives (Cubillo et al., 2006). When making decisions about their future education, students consider a variety of factors related to the university. These include service quality, reputation, and cultural diversity (Campos & Corcho, 2020; Kosztyán et al., 2023; Lesjak et al., 2015). They also consider spatial characteristics such as cultural and physical proximity, as well as travel costs. In addition, regional mobility agreements such as Erasmus play a role in the decision-making process. Finally, socioeconomic characteristics, including gender and students' country of origin, are also considered. Research indicates that students' family economic capacity influences the decision-making of credit-mobile students (Rodríguez et al., 2012), as well as that of degree-mobile students (Lupi & Ordine, 2009; Ortiz et al., 2015). In studies on credit-mobile students' preferences, it may be possible to bypass the consideration of students' age, as educational tourism is linked to youth tourism (Voleva-Petrova, 2020). Youth tourism specifically refers to individuals between the ages of 16 and 29 (UNWTO, 2011).

Lancaster's (1966) theory of consumer demand suggests that 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 linked to weather, nature-based attributes, and traffic in the destination, as outlined in the works of Bento et al. (2021), Rahman et al. (2017), and Lesjak et al. (2015), respectively. It is also possible that this phenomenon is related to man-made attractions, as studies on domestic tourism have confirmed (Camacho-Murillo et al., 2021). Among the push and pull factors that influence international students' decisions (Dreshaj et al., 2022; Lam et al., 2011; Teixeira, 2021), theft crime is of primary interest in this paper. Security-associated factors can inevitably affect international travelers during their stay in the destination (Lepp & Gibson, 2003; Mazzarol & Soutar, 2002). According to Justia (2025), theft crime is defined as "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 types.

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 thorough analysis by Kosztyán et al. (2023) utilizes the gravity model in mobility

to examine the Erasmus mobility exchange program. The study finds that, between 2008 and 2013, public safety issues significantly influenced students' decisions to participate in the program. Crime in the host countries is a significant factor contributing to student mobility in Europe, along with national cultures and international cooperation.

Lesjak et al. (2015) used a structured self-administered questionnaire to also analyze Erasmus students' destination choice motives in 11 European Union universities in 2008 and 2009. Among the twelve motives identified in the survey, "Safe and secure" ranked second in terms of importance for the 360 students who constituted the sample. The study's findings underscored the pivotal role of security factors, including crime, in students' decisions to study abroad. For Lesjak et al. (2015), ensuring a safe and secure environment is vital for attracting international students and promoting educational exchange programs within the countries of the European Union.

Zou and Yu's (2022) qualitative study examined how tourists perceive safety regarding Chinese destinations. The study analyzed data from popular web pages, such as TripAdvisor and Airbnb, online travel agencies like Ctrip and Qunar, and travel experience-sharing platforms like Mafengwo. Zou and Yu's (2022) study, which includes 3,140 reviews detailing travel itineraries and describing multiple aspects of tourists' safety experiences, concludes that the management of safe tourism environments is fundamental to incentivizing youth tourism.

The extant empirical literature demonstrates a consensus on the negative influence of crime on the choices of credit-mobile students among educational tourism destinations (against the unsafe ones). The studies have primarily concentrated on Erasmus destination countries and Chinese destination cities. There are no empirical studies conducted for the case of Colombia, nor for Latin American economies, on the way theft crime influences students' choices at the time of choosing a destination city for credit-mobility studies. This is a knowledge gap that will be addressed in the following sections of this paper.

3. Data

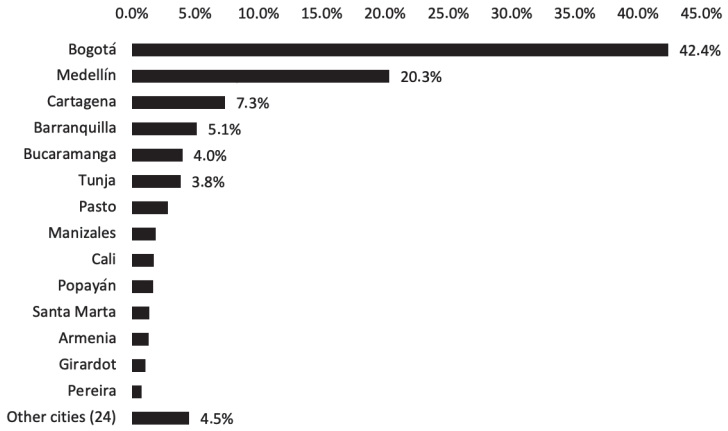
The data used in this investigation was obtained from administrative data provided by the Subdirectorate for Sectoral Development of Education Colombia's Ministry of Education (MEN). The MEN data offers specific information about international students who completed credit-mobility studies in Colombia between 2010 and 2017. This data set provides detailed information about the student's educational background, including their country of origin, the city of Colombia where the student participated in the educational credit-mobility program, the specific year of their enrollment and the university where the program was conducted.

Information regarding the specific characteristics of the cities chosen by the international students to carry out their studies is compiled from different sources. This is due to the empirical evidence that some factors, such as the weather (temperature and precipitations), the cost of living, the number of attractions (bars, restaurants, museums, libraries, and theme parks), and the crime rates of the city where the Higher Education Institution (HEI) is allocated can affect the travel decision of an international student. The data regarding

the destination's weather was obtained from the Institute of Hydrology, Meteorology, and Environmental Studies (IDEAM) of Colombia. The cost-of-living data was collected from the National Administrative Department of Statistics (DANE). The number of attractions in each city was obtained from the yellow pages website. The violent incidents resulting from thieves' activities (PONAL, 2021) and the incidents of politically motivated violence in each city were collected from the National Consortium for the Study of Terrorism and Responses to Terrorism (START, s. f.).

Some attributes of the HEI, such as the number of students and professors that the institution has and the global ranking position, can affect international students' decision to study at one university in a Colombian city. For that reason, the number of students, staff, and academic agreements of each HEI were collected from the National Higher Education Information System (SNIES) can be used as proxies of the university's national relevance. The QS ranking position was used as a proxy of the quality of the HEI. 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 of students was recorded in 2017 with 9,553 students, primarily heading to Bogotá (42.4%), Medellín (20.3%), Cartagena (7.3%), Barranquilla (5.1%), and Bucaramanga (4%) (Figure 1). In this study, 14 cities were selected as the primary set of city alternatives for credit-mobile students in the final sample (out of 38 non-empty options), accounting for 95.5% of the total students in 2017. The reduction of city alternatives has the effect of decreasing the amount of computer time required to obtain the estimated results. This is generally considered a drawback in mixed logit models (Hensher & Greene, 2002).

Figure 1. Students' choices among destination cities in Colombia, 2017 (% share)

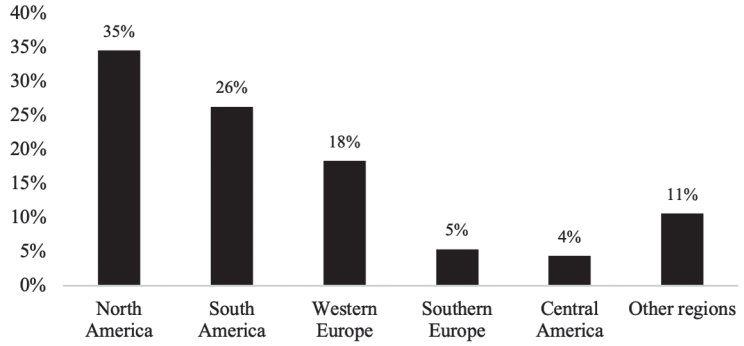


Note. Own construction based on data from MEN (2021).

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 primary 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).

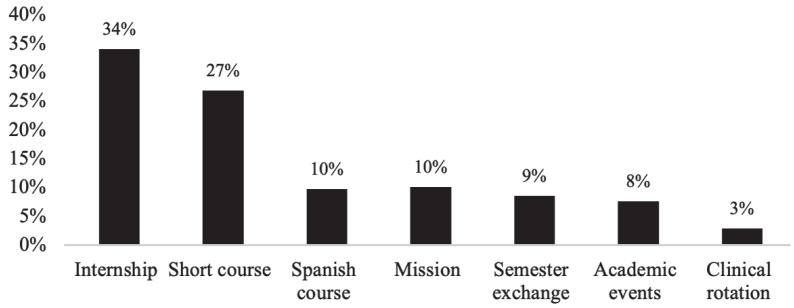
Figure 2. Students' region of origin, 2017 (% share)



Note. Own construction 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)

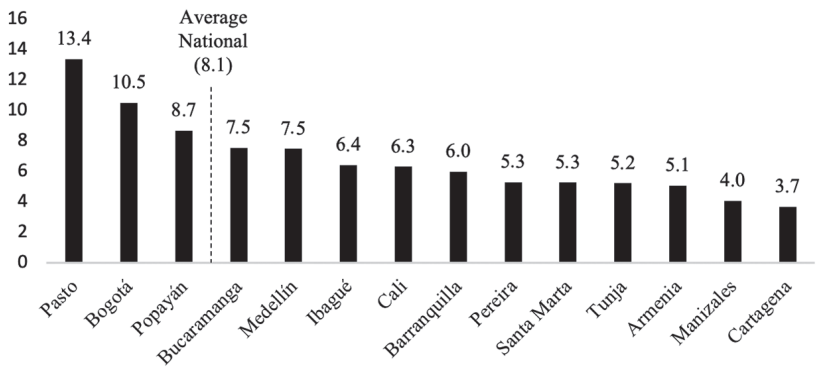


Note. Own construction based on data from MEN (2021).

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 assess the risk of crime in a potential destination based on statistics or reports provided by media companies (Kapuściński & Richards, 2016). In many cases, these reports overestimate the actual risk of traveling to a destination (Pizam & Mansfeld, 2006), or contain inaccurate information on the real risk due to data manipulation (Camacho-Murillo, 2019; Restrepo, 2018). Statistics

on theft crime in Colombia are drawn from the National Police of Colombia (PONAL, 2021). These statistics show an average of 8.1 theft incidents per thousand people in the analyzed city options, in the year 2017 (Figure 4). Pasto and Bogotá 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



Note. Own construction based on data from PONAL (2021).

Theft incidents were predominantly committed against individuals (65%), followed by commercial establishments (23%), and residential properties (13%); 58% of the incidents were perpetrated against men; and out of 100 incidents recorded, 49 were committed without weapons, 33 involved cold/blunt weapons, and 17 involved guns.

4. Methodology

This section presents the model utilized to examine the factors that influence credit-mobile international students' decisions regarding 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 successfully applied to tourism choice/demand analyses in which there is a correlation between alternatives (Camacho-Murillo et al., 2021; Nicolau, 2010), 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:

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

Equation (1) illustrates that the probabilities in a mixed logit model are the integral 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 the probability that international students will choose an alternative city (i) within Colombia to study a credit mobility program. According to ProColombia (s. f.) these city alternatives are grouped by natural regions. This suggests a link between student alternatives and the violation of the IIA assumption. The mixed logit model addresses these correlations. The data were 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:

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

In this model, V_{ni} accounts for observable covariates that influence the student (n)' choice among city alternatives (i). These covariates include 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 $\in_{in}$ is the idiosyncratic error term which accounts for unobservable characteristics by the researcher. This term is used in the context of extreme value over individuals and alternatives (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 defined as a latent variable. $distance_{ic}$ is a spatial variable that accounts for the travel distance from Bogotá, the location of Colombia's largest international airport, to the alternative city i (in km). The variable is sourced by lasdistancias.net. Preliminary analyses indicate 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). The latter category is the control group. This variable is sourced from the Institute of Hydrology, Meteorology, and Environmental Studies of Colombia (IDEAM, s. f. a). *Precipitation* is defined as the annual accumulation of rain in each city alternative (in millimeters) from January to December. As stated by IDEAM (s. f. a) this factor is influenced by *man-made* venues and sites that can impact tourists' decision-making. Such venues include restaurants, bars, theme parks, museums, and libraries (Camacho-Murillo et al., 2021; Swarbrooke, 2002). It is measured as the per capita number of man-made

attractions for leisure and recreational activities in city alternatives. Standardizing our approach enables us to avoid high correlations between man-made attractions and other explanatory variables, allowing us to accurately measure man-made attractions density in the destination. The data were sourced from Colombia's Yellow Pages via the website paginasamarillas.com.co.

The variable terrorism follows the study by Camacho-Murillo et al. (2025), and accounts for the number of terrorist incidents in the set of alternative cities, which includes assassination, hijacking, kidnapping, bombing, and armed assault. The National Consortium for the Study of Terrorism and Responses to Terrorism (START, s. f.) is the source of the data (2021). The core explanatory variable is theft, which includes the total number of theft crime incidents (per thousand people) in the city. The options against civilians with no weapons, cold or blunt weapons, and guns are also included. The statistics are sourced by the National Police of Colombia (PONAL, 2021). As the number of theft crime incidents (per thousand people) in a city rises, it is to be expected that students will show a reduced preference for that destination city. Risk-associated factors, including theft crime, are considered by tourists when planning their travel (Lepp & Gibson, 2003). However, significant differences between students are foreseen regarding 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 & Gibson, 2003).

The case-specific variables included in this paper, sourced by MEN (2021), are as follows: region, which accounts for students' region of origin, and is split into 4 categories: The following regions are included in the study: North America (Canada, the United States, and Mexico); South America (Peru, Ecuador, Brazil, Argentina, Chile, Venezuela, Bolivia, Paraguay, Uruguay, and Guyana Francesa); Western Europe (France, Germany, the 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 used as the control group. The variable tertiary identifies the type of tertiary education entity chosen by the student, whether private or public. The latter group serves as the control group.

5. Results

This section presents the estimated results in three parts. First, the 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 1. The findings from the Conditional Logit model (with and without case-specific variables) are also reported in Table 1 for a robustness check. In this initial analysis, the direction and not the magnitude of the estimated coefficients is of primary interest. Second, the average marginal effects of changes in theft crime incidents on students' choices are presented in Table 2. Thirdly, the directions of coefficients of case-specific variables are presented in Table 3.

5.1 Effects from Alternative-Specific Variables

As illustrated in columns (i) to (iii) of Table 1, the results demonstrate comparable trends in the impact of each alternative-specific variable on students' choices, except for the effect of distance when utilizing the Conditional Logit model without incorporating case-specific variables. The Mixed Logit model demonstrates the optimal goodness of fit when the Log pseudolikelihood test is evaluated, yielding the highest result. Consequently, the Mixed Logit model is selected for the subsequent analyses.

The estimated parameters from the Mixed Logit model, column (iii), are all statistically significant at the 1% level. The results indicate that credit-mobile international students are less likely to select a destination city if the distance to that city from Bogotá increases. This is primarily due to Bogotá's status as Colombia's largest international airport, which significantly enhances students' mobility, enabling them to travel to various regions within Colombia or to their hometowns with ease. The standard deviation of the coefficient of distance (Sd distance) is statistically significant at the 1% level, suggesting heterogeneity among students. This means that some students prefer cities located far away from Bogotá, while others prefer Bogotá or cities near Bogotá.

The estimated parameters of the categorical variable *temperature* indicate that international students are less likely to select warm and hot cities in Colombia than cold cities. The results are statistically significant at the 1% level. Credit-mobile students that visit Colombia for their studies. The majority of these students are attracted by the major cities of Bogotá and Medellín, where the average temperatures (maximum and minimum) fluctuate between 6°C and 19.7°C for Bogotá, and between 17.2°C and 27.2°C for Medellín (IDEAM, s. f. b). Bogotá has the lowest average temperature of the studied cities (14°C), in conjunction with Pasto (IDEAM, s. f. b). Park et al. (2020) found that hot weather tends to affect students' ability to learn, which could influence the choices of credit-mobile students in selecting a city within Colombia.

The results of the precipitation study indicate that the representative credit-mobile international student is more likely to select cities with higher rainfall levels. Nevertheless, Colombia's precipitation patterns are subject to variation due to oceanic and atmospheric processes (Montealegre, 2009), which may impact students' decisions in subsequent academic semesters. The precipitation levels recorded in 2017 in Bogotá, Medellín, Cartagena, and Santa Marta were 798mm; 1,635mm; 1,030mm; and 880mm per annum, respectively (IDEAM, s. f. a).

The findings for man-made attractions indicate a significant association between student preferences for a destination city and the relative number of man-made attractions in that city (per thousand people). This result identifies the importance of leisure-related venues for credit-mobile students. The average number of man-made attractions per capita in alternative cities is 2,547. Bogotá and Medellín, the most preferred destinations for credit-mobile studies, have the largest number of per capita venues for leisure and recreation (4,136 and 2,858, respectively). Bucaramanga, Cartagena, and Cali have the next largest number of per capita venues for leisure and recreation (830, 826, and 760, respectively).

The estimated result for terrorism indicates a positive association between terrorist acts and students' preferences among destinations. The study found that Bogotá, Cali, and Medellín

experienced three, four, and one terrorist-associated incidents, respectively, during the study period. The remaining set of options did not include any terrorist incidents. The low number of terrorist events in the studied cities in 2017, which mirrors the significant reduction of terrorist incidents in Colombia over the last 24 years (as compared to the figures reported in the 1990s), suggests that young tourists may not be aware of terrorism in Colombia. However, there are divergent claims regarding this issue.

> When I told people that I was going to Colombia the general consensus was that I was crazy. The images of Pablo Escobar still overshadow the international profile of the country, and the issues with the guerrillas, paramilitaries and FARC have done little to bring light to the murky picture. (Amrani, 2013)

> Some people may think Colombia is a scary place or have misconceptions about it. Just like many other places, drugs and violence exist, but Colombia is not a country that should be feared, especially given the friendliness and kindness of the people. (Hall, 2019)

The core findings are based on the estimated coefficient of theft, which shows the expected sign in this study, as stated in the first hypothesis. International students are less likely to select a city if it has a high crime rate, as indicated by the number of theft incidents per thousand people. This outcome aligns with the findings of Åmo & Doornich (2023), who, through a survey, determined that Norwegian students prioritize safety when selecting a destination for credit mobility studies. The findings of the study by Kosztyán et al. (2023) and Zou and Yu (2022) corroborate our results, underscoring the significance of public safety for credit-mobile students traveling within Europe (through the Erasmus program) and to China. The results of this comparative study indicate that international students consider safety to be a crucial factor when choosing to pursue credit-mobility studies, regardless of their city or country of destination. This suggests that there are cultural similarities in how safety variables influence students' decision-making processes.

A British student of Spanish and Philosophy, in an interview with a local UK newspaper, noted his family's negative perception of Latin American countries. "Besides the concerns about money, many students (and their parents, including mine) were worried about safety in Latin America" (Amrani, 2013). Therefore, the perception of crime in Colombia can be considered as a relevant variable to explain the decision of international students to pursue their studies in the country.

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 indicates that while a segment of credit-mobile students is cognizant of the personal security concerns associated with theft crime, another segment lacks this awareness. The final group of students is expected to demonstrate a lower propensity to avoid risk in relation to theft and crime incidents in their destinations, primarily due to two key factors. First, they are familiar with theft crimes in their hometowns, so they know how to reduce the risk in the visited city. Second, they are aware of the sites they can visit in the destination while residing there, as well as the optimal time to do so (this information is likely provided by authorities).

Table 1. Results from the conditional logit model and the mixed logit model

	Conditional Logit		*Mix Logit Model*
	Without case-specific variables	*With case-specific variables*	*With case-specific variables*
	(i)	*(ii)*	*(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	N.A.	N.A.	50
Cases	8,703	8,703	8,703
Log pseudolikelihood	-16836	-13430	-13361

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

Subsequent analyses of marginal effects will facilitate the determination of the magnitude of theft crime effects and the city alternatives for students with the most significant negative effects from theft incidents.

5.2 Marginal Effects of Theft Crime

Table 2 presents a summary of the average marginal effect (AME) of increases in theft crime on credit-mobile students' preferences among city alternatives in Colombia. AME shows 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 indicates 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 cities to increases in the number of theft crime incidents are Bogotá (-1.52pp) and Medellín (-0.98pp), followed by Barranquilla and Cartagena (-0.41pp each). The least sensitive alternatives to increases in the number of theft crime incidents are Ibagué (-0.037pp), Popayán (-0.043pp), and Armenia (-0.081pp). The significant impact of *theft* on credit-mobile students' preferences for these cities is a crucial consideration for majors as they justify the allocation of public resources to address personal risk-associated events.

Table 2. Average Marginal Effects of Theft Crime

City	*dy/dx*	*Std. errors Delta-method*	*z*
Armenia	-.0814***	.014	-5.77
Barranquilla	-.4155***	.062	-6.64
Bogotá	-.1525***	.234	-6.52
Bucaramanga	-.2712***	.038	-6.96
Cali	-.2626***	.041	-6.40
Cartagena	-.4186***	.067	-6.23
Ibagué	-.0378***	.007	-5.11
Manizales	-.1338***	.021	-6.21
Medellín	-.9805***	.151	-6.47
Pasto	-.1232***	.019	-6.29
Pereira	-.0928***	.016	-5.54
Popayán	-.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%.
Own construction.

5.3 Effects from Case-Specific Variables

As illustrated in Table 3 there have been shifts in the probability of pursuing a credit-mobility program in any given city (compared to Bogotá as the control group) based on three key characteristics. First, if the university where the student chooses to study is private or public (the latter is the control group). Second, if the international students travel from North America, South America, or Western Europe (as compared to other international regions, which serve 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).

As shown in Table 3, *Type of University*, international students pursuing credit-mobile programs are more likely to attend private universities in Bucaramanga, Cali, Pasto, and Barranquilla than public universities in Bogotá. Conversely, they are less likely to attend private universities in Armenia, Pereira, Manizales, Ibagué, Medellín, Cartagena, Santa Marta, and Popayán. The outcomes are statistically significant at the conventional levels, except for Pasto.

As shown in Table 3, 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, Medellín, 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, the *Type of Mobility* section in Table 3 indicates that, in contrast to international credit mobility students who travel to Bogotá for academic events, there is a higher propensity for travel to Armenia, Manizales, Barranquilla, Santa Marta, and Popayán for internships and traineeships; to Armenia, Manizales, Barranquilla, Santa Marta, and Popayán for short courses; to Armenia and Manizales for Spanish courses; to Armenia and Manizales for Spanish courses; to Armenia and Pereira for academic missions; to Armenia, Tunja, Bucaramanga, Cali, Popayán, Barranquilla, and Santa Marta for semester exchanges; and to Armenia, Pereira, Manizales, Popayán, and Santa Marta for clinical rotations. The city alternatives not mentioned in this analysis show results that are not statistically significant at any conventional level.

6. Conclusion and suggestions

This paper analyzes the factors that influence the choices of credit-mobile international students among destination cities using the Mixed Logit model. The study focuses on the impact of theft on students' preferences regarding city alternatives in Colombia. Key findings indicate a statistically significant average decrease in the probability of choosing a destination city in Colombia for credit mobility of 0.33 percentage points for every one-unit increase in the number of theft crime incidents (per thousand people). Bogotá and Medellín are the most affected alternatives, with decreases in students' preferences for these destinations of -1.52 and -0.98 percentage points, respectively. Ibagué and Popayán are the least

Table 3. Case-specific variables (Direction of effects)

	Alternative cities to study a credit-mobility program (Bogotá is the control group)												
	Andean Region							*Pacific Region*			*Caribbean Region*		
	Armenia	*Pereira*	*Manizales*	*Ibagué*	*Medellín*	*Tunja*	*Bucaramanga*	*Cali*	*Popayán*	*Pasto*	*Cartagena*	*Barranquilla*	*Santa Marta*
Type of university [1]													
Private	-	-	-	-	-	$+^{N}$	+	+	-	+	-	+	-
Region of origin [2]													
North America[a]	+	+	+	+	+	+	+	+	+	+	+	+	-
South America[b]	+	+	$+^{N}$	$-^{N}$	+	+	+	-	-	+	-	$+^{N}$	-
Western Europe[c]	$+^{N}$	+	$-^{N}$	-	$+^{N}$	-	$-^{N}$	+	$-^{N}$	+	-	+	-
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	+	+	+	-	-	-	-	$-^{N}$	+	-	-	$+^{N}$	+

Note. N: not significant at any conventional critical value; **Andean region**: Armenia, Pereira, Manizales, Ibagué, Medellín, Tunja, Bucaramanga; **Pacific region**: Cali, Popayán, Pasto; **Caribbean region**: Cartagena, Barranquilla, Santa Marta.

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.

affected, with decreases of -0.037 and -0.043 percentage points, respectively. The study's findings reveal statistically significant heterogeneity around the mean effect of theft crime incidents on credit-mobile students' preferences. This indicates that while a group of students exhibits a higher level of aversion to personal risk events, such as theft, in the optional cities of Colombia, another group of educational travelers does not share this concern.

Theft crime events have the potential to compromise the attributes that cities in Colombia offer international students, including the Sanctuary of Monserrate in Bogotá, Botero Plaza and aerial lifts in Medellín, salsa shows and the Cristo Rey monument in Cali, the coffee landscape in the coffee region (Armenia, Pereira, and Manizales), the Sanctuary of Las Lajas 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 develop initiatives aimed at reducing 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. A key strategy for international students is the permanent dissemination of information through reports on the georeferentiation of crime in each city area (localities and neighborhoods). Furthermore, recommendations regarding appropriate courses of action and pertinent contact information in the event of a theft crime can be valuable strategies to implement in urban areas. Besides, 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.

Universities should develop comprehensive orientation programs that include crime prevention strategies, provide real-time crime mapping to inform students about risk areas, and establish emergency response protocols. The integration of local students into mentorship programs, where they assist their international counterparts in acclimating to city life, has been shown to enhance their sense of security and facilitate their social inclusion. Finally, institutions such as ProColombia play an essential role in changing Colombia's image by highlighting its academic strengths, cultural richness, and safety improvements. To counter outdated stereotypes, it is essential to promote data on crime reduction, student testimonials, and security measures through targeted campaigns and international education fairs. By collaborating with universities and local governments, ProColombia can showcase Colombia as a safe and attractive destination for international students.

The findings and suggestions outlined in this paper can be extrapolated to other Latin American countries, where theft crime incidents are likely to influence the decisions of credit-mobility international students regarding alternative cities. Argentina, Mexico, and Brazil are attractive educational tourism destinations that can be included in this list, as some of their city statistics on crime rates are highly comparable to crime rates in some of the Colombian cities. A limitation to this study is the considerable time devoted to parameter estimation using the mixed logit model. Another limitation is the lack of statistics on further socioeconomic and demographic characteristics of international students, which prevented us from getting other insightful results to this study. Future studies could analyze the standard deviations of other alternative-specific variables' estimated coefficients to

test statistically significant sources of heterogeneity beyond theft crime. Further studies could also interact *theft* with available case-specific and/or alternative-specific variables to identify the sources of heterogeneity around the mean effect of theft crime on students' choices. The success of these and other future endeavors will significantly depend on the computer's capacity to run the mixed logit model or the multinomial probit model.

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