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Angela D. Bell
University System of Georgia, Angela.Bell@usg.edu

Leslie E. Hodges
University System of Georgia, Leslie.Hodges@usg.edu

Donald L. Rubin
University of Georgia, Drubin@uga.edu

Coryn Shiflet
Georgia Institute of Technology, Coryn.Shiflet@gatech.edu

Need-based Aid, Participation in Education Abroad, and Program Type Choice

By Angela Bell, University System of Georgia, Leslie Hodges, University System of Georgia, Donald L. Rubin, University of Georgia, & Coryn Shiflet, Georgia Institute of Technology

Although education abroad in the US offers participants demonstrable benefits, direct and opportunity costs are cited as primary barriers to broader participation. Yet the degree to which low-income status deters studying abroad and whether additional need-based aid beyond Pell Grants encourages participation remain uncertain. Moreover, not all education abroad programs are equivalent in terms of costs. This study is the first to examine whether need-based aid recipients differentially choose programs of varying duration or programs offered by various provider types. The sample consisted of 221,981 students from 36 institutions of the Consortium for Analysis of Student Success through International Education (CASSIE). Within that sample, 60,477 received Pell grants. Of those recipients, 39% received additional need-based aid. Regression models controlling for student background and context indicated that Pell grant recipients were 3% less likely to study abroad than peers receiving no such aid, and receipt of additional aid increased likelihood by 1% relative to Pell-only recipients. While aid was unrelated to study abroad duration, low-income students were less likely to study with third-party providers. The findings invite financial aid officers to determine thresholds of additional aid necessary to increase participation and to collaborate more systematically with counterparts in international education.

Keywords: *study abroad, low-income students, need-based financial aid*

While the recent COVID-19 pandemic severely curtailed the number of U.S. college students who participated in education abroad, prior figures demonstrate that national growth was trending upward. According to the Institute for International Education's (IIE) Open Doors Report, in the 2018 – 2019 academic year there were 347,099 outbound study abroad students (IIE, 2021b). Indeed, education abroad has evolved from a rare component of elite liberal arts education to a mainstay of higher education strategic plans (Twombly et al., 2012). This normalization has occurred as research has found that education abroad can function as a high impact educational practice (Landon et al., 2017) and has such positive benefits as enhancing self-efficacy (Petersdotter et al., 2017), sharpening a sense of global citizenship and intercultural sensitivity (Stebleton et al., 2013), and improving world language proficiency (Norris & Steinberg, 2008). Education abroad has also been found to promote timely college completion (Bhatt et al., 2022) with especially large effects for students from groups that historically have performed less well in terms of grades and graduation rates (Bell et al., 2021).

Given these benefits, proponents argue that institutions ought to generally increase rates of participation (Gordon et al., 2014). In particular, they assert that opportunities ought to be made more accessible for low-income students, first-generation students, and students from other groups that historically have scored less well on measures of academic performance (Metzger, 2006). Unfortunately, those very groups are underrepresented in education abroad programs (Bell et al., 2021; Dessoff, 2006).

Many factors determine whether a student will study abroad ranging from peer influences (Whatley, 2018) and availability of courses in one's major (Schock, 2010) to perceptions among students from minoritized racial or ethnic groups about racism in destination countries (Brux & Fry, 2010). Education abroad professionals commonly believe, however, that a student's financial resources dwarf these other factors and constitute the preeminent consideration that determines

whether a student crosses the threshold to even contemplate the possibility of studying abroad (Ecker-Lyster & Kardash, 2022; Goldstein & Lopez, 2021). Helping low-income students meet the economic burden of studying abroad by increasing financial aid thus constitutes a major preoccupation of international education at US. institutions (Lauman et al., 2006). Research has also begun to show the contribution of financial aid to promoting education abroad for low-income students (Whatley & Clayton, 2020). The present study seeks to further this line of inquiry examining the relationship between students' financial aid receipt and their participation in education abroad. It addresses two main research questions: (1) What is the association between receipt of need-based aid and participation in education abroad, and (2) For those students who do study abroad, what are the associations between financial aid receipt and certain characteristics of the selected education abroad programs (e.g., short-term versus semester-length programs; home faculty-led versus third-party provider)? This inquiry was enabled by a large data set that includes both student financial information and education abroad program characteristics for students enrolled in 36 colleges and universities across the US.

Conceptual Framework

This paper applies Perna's (2006) "Proposed Conceptual Model of Student College Choice" to student decisions, once enrolled in college, about education abroad, both electing to participate and selection of the type of program. Perna's framework posits that student decisions are explained partly by human capital theory, that is, individuals decide to make investments in improving their skills and knowledge based on their assessment of the benefits and costs of that investment (Becker, 1962, 1993). This theory applied to education abroad participation has students weighing the cost of study abroad, including foregone earnings, to the monetary and non-monetary benefits of participation.

Drawing from sociological perspectives, however, Perna's model imagines this human capital decision to be informed by four nested layers of context. Those layers are a secondary student's own *habitus*, school and community context, the higher education context, and a broad social, economic, and policy context. *Habitus* is a set of socially derived predispositions that undergird students' perceptions of educational opportunity (Bourdieu, 1984, 1986; Coleman 1988; Karen, 2003). It is constituted by student demographics (e.g., gender, race/ethnicity, socioeconomic status) and access to certain types of social and cultural capital. The next layer is school and community context where social and institutional structures interact to facilitate or impede college choice. The third layer is the higher education context, which shapes choice through provision of information, attributes of institutions, admissions policy, and enrollment capacity. Finally, the outermost layer is the larger social, economic, and policy factors that shape college-going.

Perna posited that this college choice model might be applied to educational decisions beyond initial matriculation in college (2006). Similar to other scholars (e.g., Kim & Lawrence, 2021; Lehmann & Trower, 2018; Salisbury et al., 2009; Whatley & Clayton, 2020), we apply it here to the decision-making process of enrolled college students regarding participation in education abroad. Like the initial decision to enroll in college, the decision to study abroad involves investing in an educational experience and may similarly be shaped by student background and the intersection of that background with a student's context. Applying the model, we posit that, when weighing the costs and benefits of education abroad, students are influenced at the center of the nested layers of context by their own *habitus*, constituted of demographic characteristics and access to forms of social and cultural capital. These characteristics shape students' predisposition toward and decisions regarding study abroad with emphasis on the financial resources they and their families possess. In the second layer of the model, a student's secondary school and community experiences, and the

exposure to international travel and its benefits, indubitably shape student predispositions to study abroad (Whatley, 2020). The third layer is the higher education context, which more proximally shapes education abroad decisions of enrolled college students. This includes type of institution and its education abroad offerings and policies, student major, and early college academic success (Whatley, 2019, 2020). It also includes financial resources provided by the institution for students to study abroad that can compensate for a lack of student and family resources. The outermost layer of the model posits that broader social, economic, and policy contexts shape education abroad participation. This could include recently seen dynamics like a pandemic or recession, but we draw attention to the role of federal and state financial aid policy, in particular need-based aid, that inform a student's weighing of the costs and benefits of education abroad. Taken as a whole, layers of context in Perna's model offer mechanisms by which students of different backgrounds make decisions about participation in education abroad.

Review of Literature

The most commonly-cited factor for determining whether a student will study abroad is financial cost (e.g., Ecker-Lyster & Kardash, 2022). It is difficult to obtain comprehensive information about the direct costs of studying abroad. One effort to generalize about direct program costs found that in 2019 a U.S. student could expect to spend about $22,000 for a semester's study in Sydney, Australia, or $6,600 in western China. The average direct program costs for a semester's study abroad was $14,300. These figures, however, exclude transportation costs and vary to the degree that they include housing, insurance, and other necessities, much less amenities such as tourism (Go Abroad, 2019). Many programs contend that direct costs of studying abroad can be commensurate with the cost of studying on campus, at least for students who practice frugality. In addition to these direct program and transportation costs, however, students also incur opportunity costs—such as time away from wage-earning employment (Ludlum et al., 2013). It is presumed, therefore, that students from low-income groups are underrepresented in education abroad in large part because those opportunity costs are especially burdensome for them (Soria et al., 2014). Moreover, it is likely that students from lower income families who do study abroad will be more price sensitive than their upper income peers (Ecker-Lyster & Kardash, 2022). Therefore, assuming cost-transparency, students from lower income families will on average gravitate toward less expensive programs. It is generally presumed that short-term programs led by home-campus faculty are most affordable, and therefore most effective in increasing participation from low-income students (Thrush & Victorino, 2016).

Notwithstanding the wide-spread presumption about the attractiveness of short-term faculty-led education abroad programs to low-income students, hard data associating financial cost with particular program features have not been compiled. The present study is the first to examine whether low-income status is associated with any particular preference for program design features. A handful of studies have investigated the relation between student financial status and participation in education abroad (Kim & Lawrence, 2021; Salisbury et al., 2009; Soria et al., 2014; Whatley, 2017; Whatley & Clayton, 2020). The number of such studies is not great, no doubt in large part because of the difficulty of obtaining adequate data about students' finances. In some cases, students self-report their family income (e.g., Kim & Lawrence, 2021), whereas other studies have the advantage of access to institutional data about family income, usually limited, however, to just those students who have filled out a Free Application for Federal Student Aid (FAFSA) form in preparation to apply for financial aid (e.g., Whatley & Clayton, 2020).

Family income strongly predicts students' intentions to study abroad when they first come to college (Kim & Lawrence, 2021; Salisbury, et al., 2009). Not only do lower income students regard

studying abroad as implausible in their economic circumstances, but their forms of social capital may not normalize the study abroad experience (Simon & Ainsworth, 2012). Moreover, even after taking different levels of intent into account, lower income students are less likely than their higher income counterparts to cross the threshold to actual program participation (Lingo, 2019). Advocates have argued that the remedy for this situation is additional financial aid for low-income students. This policy is supported by Whatley and Clayton's (2020) research, which found that need-based grant aid substantially increased participation in study abroad for low-income students at Georgia public institutions. As noted by the authors, a limitation of this work is its focus on one state with its unique higher education and financial aid context. This may reduce the ability to generalize the results across the country.

In addition, Whatley and Clayton (2020) consider all need-based aid together. The federal Pell grant is the base form of financial aid for all qualifying low-income students. It is available at most institutions and in any state. Among low-income students, the decision to study abroad may be based on whether additional need-based aid is available beyond that base. The federal Supplemental Educational Opportunity Grant is targeted at the neediest students but is only available in limited quantities at participating schools. State grants have grown as a percent of all aid awarded to undergraduate students from 5% in 2009-10 to 7% in 2019-20 (Ma & Pender, 2021), with the need-based aid portion of this percentage growing by about $1.76 billion or 23% in constant 2019 dollars (National Association of State Student Grant & Aid Programs, 2020). However, states vary dramatically in the estimated need-based aid awarded per undergraduate student, from $0 up to $1,668 (National Association of State Student Grant & Aid Programs, 2020). Institutions themselves award a significant amount of grant aid to undergraduates with the share of this aid as a percent of all aid to undergraduates increasing from 16% to 30% from 2009-10 to 2019-20. This aid varies not only between postsecondary sectors (with the percentage of students receiving funds as well as the average award being much higher at private, non-profit institutions than at public four-year institutions) but also between institutions within those sectors (College Board, 2021). Finally, students have differential access to private need-based scholarships and grants. Previous research has generally shown positive associations between receipt of other forms of need-based aid and low-income student enrollment and success (Castleman & Long, 2016; Goldrick-Rab et al., 2016; Kane, 2003). While the current study cannot distinguish between these other forms of aid nor differing amounts, it would advance the field to understand whether student access to some form of need-based aid, beyond the base provided by Pell, similarly shapes education abroad decision making.

Furthermore, research on student decisions to study abroad in general, and in particular on the contingency of those decisions on financial aid, has mainly failed to consider that education abroad programs are quite diverse in terms of program characteristics (Engle & Engle, 2003). They vary at least in terms of geographic location, type of program (e.g., exchange at a host national institution versus a residential "island" program run by a US institution), program provider (students' home institution versus third-party provider), language of instruction, and duration. Depending on the outcome under consideration, some program designs render greater effect than others (Hudson & Morgan, 2019). Indeed, analyses have found that both length of study abroad program and program provider type are related to likelihood of graduation in four or six years (Bhatt et al., 2022. Education abroad in the US has evolved such that the preponderance of students—62.2%—now enroll in short-term (fewer than eight weeks) programs compared with 4.4% of programs lasting eight weeks to one semester, 30.7% of programs lasting one semester, and 2.6% of programs lasting longer than one semester during the 2018- 2019 academic year (IIE, 2021a). Some authorities believe that short-term programs have become attractive especially to lower income students because their overall cost is likely less than other types of programs (West, 2019), but empirical evidence querying that supposition has not been established prior to the current study.

Therefore, this paper seeks to build on and extend prior research on the relationship of need-based aid to the decision to study abroad as well as choice among different types of study abroad experiences. We seek to do this through leveraging a large, recent multi-state dataset to answer the following research questions:

1. Is the receipt of need-based grant aid related to student decisions to study abroad?
2. Conditional on participation in study abroad, is the receipt of need-based aid related to student decisions on study abroad provider type and length of program?

Analysis and Results

Overall Sample

The dataset utilized in these analyses is from the Consortium for the Analysis of Student Success through International Education (CASSIE). CASSIE is a federal grant-funded initiative hosted by the University System of Georgia to assess the contribution of international education experiences to undergraduate student success and support data utilization for decision making and advocacy. CASSIE included 45 colleges and universities across the U.S., all of which provided, for their 2010 and 2011 first-time freshman cohorts, term-by-term student-level data regarding student demographics and academic preparation, financial aid, and student progression and completion information. In addition, it included information on location, length, language, and program provider type of the education abroad experiences for the approximately 30,000 students who studied abroad. Although some of the institutions included in the study also offer two-year degrees, and most offer graduate degrees, for comparability purposes these analyses consider only students seeking bachelor's-level degrees. Then, the sample was restricted to CASSIE institutions that had at least five study abroad participants. This cutoff was chosen for consistency with prior CASSIE research which utilized matching methods and required sample sizes of five or larger to sufficiently estimate standard errors (e.g., Bhatt et al., 2022). Table 1 provides information about the 36 institutions included in the study. Across these 36 institutions, the number of students in the 2010 and 2011 first-time freshman cohorts ranged from 732 to 13,742 students with institutional study abroad participation rates that range from 1% to 42%. As this is a longitudinal dataset and some students did study abroad multiple times, only the first study abroad experience was included for analysis such that each student was only observed once.

Research Question 1

Preliminary Descriptive Analyses for Research Question 1. We first conducted analyses on the full sample of 221,981 students to understand if dynamics around study abroad participation found in existing literature held for CASSIE institutions and determine the degree to which need-based aid shapes the decision to study abroad. Table 2 provides descriptive information on the 60,447 students who received Pell in their first term of enrollment. Pell recipients differed from the full sample in ways that have been shown in prior research to shape the decision to study abroad. Pell recipients were disproportionately from non-White race/ethnicity categories, had lower high school academic preparation (as represented by GPA and SAT scores), attempted fewer hours, and attained lower GPAs during their first term in college. Pell recipients were less likely to have majors in the Arts and Humanities and Business/Communications areas and were more likely to major in STEM, Social and Behavioral Sciences, Education, Trades, and Other majors. While only 19.4% of the full sample received other need-based aid, 39.3% of Pell recipients received this additional

financial support. Just over 8% of Pell recipients studied abroad compared with 13.8% in the full sample. Of import to the focus of this paper, 29.6% of students received Pell in their first term of enrollment and 19.4% received other need-based aid in their first term.

Table 1

CASSIE institutions

Institution	Cohort N	% Studied Abroad	Control	Enrollment (2017)	Carnegie Classification	Geographic Region
IHE 1	1,975	1%	Public	5,000-9,999	M2	South
IHE 2	1,830	5%	Public	5,000-9,999	D/PU	South
IHE 3	7,975	5%	Public	30,000+	M1	West
IHE 4	8,069	6%	Public	20,000-29,999	R2	Midwest
IHE 5	1,103	2%	Public	5,000-9,999	M2	South
IHE 6	2,399	7%	Public	5,000-9,999	M1	South
IHE 7	732	2%	Public	5,000-9,999	Bac Colleges	South
IHE 8	11,861	13%	Public	30,000+	R1	South
IHE 9	2,412	11%	Public	5,000-9,999	M1	South
IHE 10	4,237	1%	Public	10,000-19,999	Bac Colleges	South
IHE 11	5,408	33%	Public	20,000-29,999	R1	South
IHE 12	9,550	9%	Public	20,000-29,999	R1	South
IHE 13	880	3%	Public	<5,000	M2	South
IHE 14	5,764	9%	Public	30,000+	R1	South
IHE 15	7,150	6%	Public	30,000+	R1	South
IHE 16	7,266	3%	Public	20,000-29,999	DPU	South
IHE 17	7,878	42%	Private	30,000+	R1	Northeast
IHE 18	2,253	1%	Public	<5,000	M3	South
IHE 19	3,171	36%	Private	10,000-19,999	R1	South
IHE 20	11,140	2%	Public	20,000-29,999	R1	South
IHE 21	10,664	19%	Public	30,000+	R1	West
IHE 22	13,600	11%	Public	30,000+	R1	West
IHE 23	6,952	30%	Public	20,000-29,999	R1	Northeast
IHE 24	10,163	26%	Public	30,000+	R1	South
IHE 25	8,249	13%	Public	30,000+	R1	Midwest
IHE 26	6,921	18%	Public	20,000-29,999	R1	Midwest
IHE 27	8,250	12%	Public	20,000-29,999	R1	South
IHE 28	8,989	16%	Public	30,000+	R1	Northeast
IHE 29	1,850	8%	Public	10,000-19,999	M2	South
IHE 30	8,985	19%	Public	30,000+	R1	South
IHE 31	13,742	18%	Public	30,000+	R1	South
IHE 32	3,880	5%	Public	10,000-19,999	D/PU	South
IHE 33	4,815	5%	Public	10,000-19,999	D/PU	South
IHE 34	10,016	15%	Public	30,000+	R1	South
IHE 35	859	28%	Private	10,000-19,999	M1	Midwest
IHE 36	993	1%	Public	10,000-19,999	M1	Northeast
Total	221,981	14%				

Eight USG institutions were omitted from the analysis due to having no bachelor's or no/too few study abroad students. Data on control, Carnegie Classification, and enrollment is from the Integrated Postsecondary Education Data System. The following Carnegie Classifications are used: R1: Doctoral Universities - Very High Research Activity; R2: Doctoral Universities - High Research Activity; D/PU: Doctoral/Professional Universities; M1: Master's Colleges and Universities - Larger Programs; M2: Master's Colleges and Universities - Medium Programs; M3: Master's Colleges and Universities - Smaller Programs; Bac College: Baccalaureate college.

Table 2

Descriptive statistics

	All Students	Students Who Received Pell in the First Term	Students Who Studied Abroad
Independent Variables			
Female	54.14%	58.3%	67.1%
Race/Ethnicity			
White	64.24%	40.88%	71.19%
Black	11.94%	28.12%	4.72%
Asian	7.11%	9.01%	7.46%
Hispanic	9.58%	14.69%	9.01%
American Indian/Alaska Native	0.32%	0.46%	0.26%
Native Hawaiian	0.12%	0.15%	0.04%
Two or More Races	2.62%	3.12%	2.37%
Unknown	4.1%	3.58%	4.95%
Age (mean)	19.49	19.67	19.34
SAT (mean)	1,141	1,062	1,227
High School GPA (mean)	3.48	3.37	3.67
Received Pell in first term	29.57%	100.00%	17.37%
Received Pell in term before Study Abroad	-	-	16.6%
Major			
Arts and Humanities	24.03%	19.95%	31.81%
STEM	33.67%	35.28%	26.91%
Social and Behavioral Sciences	11.13%	12.42%	12.32%
Business and Communications	13.86%	11.97%	16.36%
Education	3.80%	3.97%	2.48%
Trades	1.74%	2.81%	0.62%
Other	11.78%	13.59%	9.49%
GPA in First Term (mean)	2.84	2.64	3.22
GPA in Term before Study Abroad	-	-	3.39
Credit Hours Attempted in First term (mean)	16.64	15.88	15.42
Credit Hours Attempted in Term before Study Abroad	-	-	14.04
Other Needs-Based Aid in First Term	19.38%	39.28%	18.27%
Other Needs-Based Aid in Term before Study Abroad	-	-	20.13%
Outcomes			
Study Abroad	13.8%	8.1%	
Program Provider Type			
College/University Provider	-	-	69.41%
Third Party Provider	-	-	22.68%
Exchange Program Provider	-	-	7.92%
Program Length			
2-8 weeks	-	-	48.91%
More than 8 weeks	-	-	51.09%
Sample Size	221, 981	60,447	30,649

Note: Percentages are calculated out of non-missing data.

Methods for Research Question 1. In regression models corresponding to research question 1, predictor variables follow from previous research (e.g., Salisbury et al., 2009; Whatley, 2017) and operationalize the layers of Perna's (2006) model. The student and family layer is represented by student sex, race/ethnicity, age, high school GPA, and SAT score (including concorded ACT scores), and receipt of a federal Pell grant, which we utilize as a proxy for low-income status, as discussed below. We include a student's major (seven categories), credit hours attempted, and GPA in the first term, and a set of institutional fixed effects as part of the higher education context. We also include a dichotomous indicator of receipt of other need-based aid in the first term of college enrollment. Other need-based aid could be grants from external organizations, the institution, state, or federal government. While our data cannot distinguish between the origins of aid, depending on source it would represent the community, higher education, or larger policy environment of Perna's model. The dependent variable in these models is the likelihood of studying abroad during the six years of enrollment tracked by CASSIE. Just under 14% of students studied abroad at least once during their college careers.

Statistical Analyses for Research Question 1. Logistic regression models were fitted on the binary outcome of participation in study abroad (1= study abroad; 0 = no study abroad) in successive models representing the layers of the conceptual framework. (See Agresti, 2018 for details on choosing an appropriate analysis for categorical outcomes.) Model 1 includes student and family background characteristics; Model 2 adds higher education context; and Model 3 adds receipt of other need-based aid which, depending on source, can be from the community, higher education, or broader policy context. The equation for the fully specified model (Model 3) is as follows:

$$ln\frac{\mathrm{P}(Y_i)}{1-\mathrm{P}(Y_i)} = \beta_0 + \beta_a \mathrm{S}_i + \beta_b \mathrm{H}_i + \beta_c \mathrm{P}_i\,, \tag{1}$$

where the outcome of interest is participation in study abroad and S = the set of student and family background variables, H = the set of higher education context variables (including a fixed effect for institution), and P = the financial aid policy context, i.e., receipt of need-based aid beyond Pell. To test associations between other need-based aid and study abroad participation among low-income students specifically, we next fitted binary logistic regression models identical to the preliminary analyses with the exception of excluding Pell grant receipt as an indicator since we limited the sample to Pell recipients.

Results for Research Question 1. These analyses (see results in Table 3) indicated that Pell grant recipients were less likely to study abroad. While the Pell grant provides additional resources to low-income students, we interpret the negative coefficient as evidence that the funds are insufficient to overcome financial barriers to participation and thus the indicator functions basically as a proxy for low-income status. The variable representing other need-based aid is also negatively associated with study abroad participation, and we interpret this finding similarly to the Pell grant. Not all Pell grant students in our sample received additional need-based aid. By focusing on Pell recipients specifically to further address Research Question 1, we sought to establish whether the receipt of additional resources from sources of need-based aid other than Pell was linked to study abroad participation for those students whose decision-making may have been most sensitive to available financial resources.

Table 3

Logistic regression results of predictors of studying abroad for all students (marginal effects)

	Model 1	Model 2	Model 3
Female	0.090***	0.072***	0.076***
	(0.002)	(0.002)	(0.002)
Race/Ethnicity			
White	Reference	Reference	Reference
Black	-0.031***	-0.019***	-0.018***
	(0.003)	(0.003)	(0.004)
Asian	-0.012***	-0.029***	-0.030***
	(0.003)	(0.003)	(0.003)
Hispanic	0.017***	0.014***	0.015***
	(0.003)	(0.003)	(0.003)
American Indian/Alaska Native	-0.011	0.004	0.007
	(0.015)	(0.015)	(0.016)
Native Hawaiian	-0.075***	-0.069***	-0.069**
	(0.019)	(0.020)	(0.021)
Two or More Races	-0.016**	-0.013**	-0.013**
	(0.005)	(0.005)	(0.005)
Unknown	0.005	-0.021***	-0.022***
	(0.004)	(0.004)	(0.004)
Age	-0.004**	-0.005***	-0.006***
	(0.001)	(0.001)	(0.001)
High School GPA	0.020***	-0.009***	-0.009***
	(0.002)	(0.002)	(0.002)
SAT	0.042***	0.014***	0.015***
	(0.001)	(0.001)	(0.001)
Pell Receipt in First Term	-0.046***	-0.033***	-0.028***
	(0.002)	(0.002)	(0.002)
Major			
Arts and Humanities		Reference	Reference
STEM		-0.038***	-0.038***
		(0.002)	(0.002)
Social and Behavioral Sciences		0.001	0.002
		(0.003)	(0.003)
Business and Communications		0.029***	0.031***
		(0.003)	(0.003)
Education		-0.045***	-0.045***
		(0.004)	(0.004)
Trades		-0.048***	-0.054***
		(0.007)	(0.007)
Other		-0.012***	-0.011**
		(0.003)	(0.003)
GPA in First Term		0.070***	0.073***
		(0.001)	(0.001)
Credit Hours Attempted in First term		0.001***	0.001***
		(0.0002)	(0.0002)
Other Need-Based Aid in First Term			-0.018***
			(0.002)
Sample Size	187,964	187,564	177,369
Chi-square	13351.55	24825.32	23600.86
Pseudo R2	0.0872	0.162	0.159

Note. Reported here are marginal effects at means. Institution included as a fixed effect, not shown here. Standard errors in parentheses. * $p <$ .05, ** $p <$.01, *** $p <$.001

Table 4

Logistic regression results of predictors of studying abroad for students who received Pell in the first term (marginal effects)

	Model 1	Model 2	Model 3
Female	0.053***	0.044***	0.047***
	(0.002)	(0.002)	(0.003)
Race/Ethnicity			
White	Reference	Reference	Reference
Black	-0.010**	-0.005	-0.005
	(0.003)	(0.004)	(0.004)
Asian	0.002	-0.013***	-0.015***
	(0.004)	(0.004)	(0.004)
Hispanic	0.029***	0.021***	0.023***
	(0.004)	(0.004)	(0.004)
American Indian/Alaska Native	0.007	0.004	0.005
	(0.019)	(0.018)	(0.020)
Native Hawaiian	-0.030	-0.031	-0.026
	(0.028)	(0.028)	(0.033)
Two or More Races	0.003	0.004	0.003
	(0.007)	(0.007)	(0.007)
Unknown	0.014*	-0.003	-0.006
	(0.007)	(0.006)	(0.007)
Age	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)
High School GPA	0.028***	0.001	0.001
	(0.002)	(0.003)	(0.003)
SAT	0.024***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)
Major			
Arts and Humanities	Reference	Reference	Reference
STEM		-0.027***	-0.028***
		(0.003)	(0.003)
Social and Behavioral Sciences		0.0004	0.002
		(0.003)	(0.005)
Business and Communications		0.015**	0.018**
		(0.005)	(0.005)
Education		-0.031***	-0.031***
		(0.006)	(0.007)
Trades		-0.041***	-0.046***
		(0.009)	(0.009)
Other		-0.008	-0.007
		(0.005)	(0.005)
GPA in First Term		0.047***	0.051***
		(0.002)	(0.002)
Credit Hours Attempted in First term		0.001***	0.001***
		(0.0002)	(0.0003)
Other Need-Based Aid in First Term			0.010**
			(0.003)
Sample Size	54,589	54,499	48,855
Chi-square	2257.83	4524.61	4527.49
Pseudo R2	0.072	0.143	0.144

Note. Reported here are marginal effects at means. Institution included as a fixed effect, not shown here. Standard errors in parentheses. * $p <$ .05, ** $p <$.01, *** $p <$.001

Results based on Pell recipients only appear in Table 4 with the effects for each independent variable presented as marginal effects at means. Focusing on the fully specified model, which includes all covariates, we found that receipt of other need-based aid increased likelihood of education abroad participation among these Pell grant recipients by only 1% (p <.01). In addition, we found that female students were 4.7% more likely than males to study abroad (p <.001). Compared to the reference group of White students, Asian students were 1.5% less likely to participate while Hispanic students were 2.3% more likely to participate (p <.001) compared to White students. Students' SAT scores were also significantly related to participation in study abroad with each point increasing participation by 0.6%. Moving from the student layer to higher education context, student major was found to be related to participation. Compared to the reference category of Arts and Humanities, STEM students were 2.8% less likely to participate, Education students were 3.1% less likely, and students in Trades were 4.6% less likely (p <.001 for all effects) to participate in study abroad. Students in Business and Communications majors were 1.8% more likely to participate than Arts and Humanities majors (p <.01). The number of credit hours attempted and GPA in the first term were also positively associated with study abroad participation (p <.001).

Research Question 2

Preliminary Descriptive Analyses for Research Question 2. Our second research question addressed the relationship between need-based aid receipt and certain study abroad program types for all students who studied abroad (regardless of financial aid status). Table 2 displays descriptive information about the 30,649 students in the entire sample who participated in study abroad. Focusing on the aid characteristics, only 17.4% of study abroad participants received Pell in the first term compared with 29.6% of the full sample. The percentage receiving need-based aid other than Pell grants in the first term was 18.3%, 1.1 percentage points lower than in the full sample. Table 2 indicates that 48.9% of students participated in a program of up to eight weeks in length while 51.1% chose a program of more than eight weeks. Nearly 70% of students chose to study with a campus-led program, 23% chose third-party providers, and 8% studied on exchange programs.

To explore whether the distribution of provider type was similar across the (deidentified) institutions that contributed data, Appendix 1 was constructed, which shows the variation among the institutions for participation rates in each program provider type. For example, some institutions did appear to rely more heavily on third-party providers than others. Five of the institutions (IHE 2, 5, 8, 10 and 13) had no variability among program provider type and were excluded from further analysis addressing this research question (n = 1,676 students). We inquired at these schools what the reasons were for having only home programs; this insight provides information not only on these schools but likely the dynamics at other schools with some but little participation in other program types. One institution noted that while "exchanges and direct enroll" programs are present, they represent a very small proportion of education abroad at their institution and happened to not exist at all in the 2010 and 2011 first-time freshmen cohorts. Another respondent cited "no official partners" at the time these data were collected but noted that agreements have been established since then to permit exchanges and third-party program participation. Another respondent explained that the main factors driving almost all students participating in home college over third-party programs are "cost, fear of traveling, and concern about getting off track from their program and delaying graduation." One respondent said that the study abroad program office does not promote or provide information on exchange or third-party programs in any formal way; thus, if a student did find a non-university affiliated program, it would be through their own research. Another institutional respondent echoed this same sentiment, reporting that home programs are more heavily

marketed and are a first option for many students "since many haven't traveled much before signing up." A third institution also noted that the preference for home institution programs is related to concerns about affordability as other programs "tend to be considerably more expensive." This respondent specifically cited a cost cap for students of $3,500 as "many students utilize financial aid to help cover costs and there is a finite amount of aid that can be borrowed by a student during their entire program."

Methods for Research Question 2. When limiting to study abroad participants only, we were able to use data from the term prior to the study abroad experience instead of first term and thus take advantage of more proximal information to predict study abroad program type. College GPA, credit hours attempted, Pell and other need-based aid receipt were thus derived from the semester immediately prior to education abroad. The outcomes of interest for Research Question 2 pertained to choice of program duration and choice of program provider type.

Statistical Analyses for Research Question 2. To predict program provider type, we employed a multinomial logistic regression model predicting student selection of home college/university provider (reference category), third-party provider, or exchange program. This statistical approach was chosen since the data were categorical in nature, there were more than two categories, and the categories do not have a clear order (Agresti, 2018). The multinomial logistic regression model is an extension of logistic regression and makes several comparisons using a set of dummy codes, similar to the process used in logistic regression, but compares each category to the comparison category (here the comparison category is the college/university provider). Models similar to those employed in Research Question 1 were estimated utilizing student and family background, higher education context, and financial aid policy context indicators plus institutional fixed effects. The equations for the fully specified model are as follows:

$$ln\frac{\mathrm{P}(Y_i=Third\ Party\ Provider)}{1-\mathrm{P}(Y_i=College/University\ Provider)} = \beta_0 + \beta_a \mathrm{S}_i + \beta_b \mathrm{H}_i + \beta_c \mathrm{P}_i \quad (2)$$

$$ln\frac{\mathrm{P}(Y_i=Exchange\ Program)}{1-\mathrm{P}(Y_i=College/University\ Provider)} = \beta_0 + \beta_a \mathrm{S}_i + \beta_b \mathrm{H}_i + \beta_c \mathrm{P}_i\ . \quad (3)$$

For program length, we used ordered logistic regression to estimate the likelihood of participating in a program longer than eight weeks relative to the reference category of programs of eight weeks or less. This statistical approach was chosen since the data are categorical in nature, there are more than two categories, and the categories have a clear order of increasing program length, yet the intervals are not equal. (For more information about ordered logit models, see Grilli & Rampichini, 2014) The equation for the fully specified model is as follows:

$$ln\frac{\mathrm{P}(Y_i=Longer\ than\ 8\ weeks)}{1-\mathrm{P}(Y_i=8\ weeks\ or\ less)} = \beta_0 + \beta_a \mathrm{S}_i + \beta_b \mathrm{H}_i + \beta_c \mathrm{P}_i. \quad (4)$$

Results for Research Question 2. *Choice of Provider Type.* Table 5 provides the results with relationships expressed as relative risk ratios specifying the effect of the indicator on the likelihood of a particular program type holding other covariates constant. We found that students receiving Pell in the term prior to study abroad, compared to non-Pell recipients, were 27% less likely to participate in a third-party program compared to a home college or university program. Pell receipt was unrelated, however, to exchange program participation. Furthermore, the receipt of other need-based aid beyond Pell in the term prior to study abroad was not significantly associated with either program type. In addition, we found that female students were 16% more likely to participate in a

third-party provider program over a home college/university program relative to male students. Conversely, female students were 25% less likely to participate in an exchange program over a home program relative to male students.

In terms of race/ethnicity, Black, Asian, and Hispanic students were less likely than White students to participate in a third-party provider over a home program (51%, 26%, and 24%, respectively) and Hispanic students were 33% less likely to participate in an exchange program over a home program. Being an older student was associated with an 18% higher likelihood of participating in an exchange program over a home program. In terms of academic background, students with higher high school GPAs and SAT scores had lower likelihood of participating in a third-party program (22% and 4% respectively) but a higher likelihood of participating in an exchange program relative to a home program (20% and 11% respectively).

Student major was also significantly related to program type. Relative to home program, students in STEM and Trades were less likely to participate a third-party program compared to Arts and Humanities majors (28% and 49%, respectively) while Social and Behavioral Science majors and Business and Communications majors were more likely (17% and 32%, respectively). With regard to the likelihood of participating in an exchange program over a home program, Business and Communications majors and those in Other majors were more likely to participate in an exchange program than Arts and Humanities students (46% and 78%, respectively), while students in the Trades were 90% less likely. Finally, academic progress in the term prior to study abroad was associated with program type as well, with each unit increase in GPA associated with 14% higher likelihood of participating in an exchange program over a home program, and each increase in credit hours attempted associated with a 1% higher likelihood of both a third-party program and an exchange program relative to a home program.

Choice of Program Duration. Results regarding choice of program duration are shown in Table 6 with indicator relationships expressed as odds ratios. In our focal inquiry, we found that aid receipt, either Pell or other need-based aid, was not significantly related to program duration. Exploring our other covariates, gender was also unrelated to program length type. Black, Asian, and Hispanic students, however, all had lower odds of participating in a long program relative to White students. While each point higher in high school GPA was associated with lower odds of a long program, higher SAT score was conversely associated with higher odds. With regard to major, students in STEM and Trades majors, relative to Arts and Humanities majors, had lower odds of participating in a long program while Business and Communication majors had higher odds. Although GPA in the term prior to study abroad was unrelated to program length, each additional credit hour taken in the term prior was associated with a small increase in the odds of participating in a long program.

Table 5

Multinomial regression results for study abroad program provider type (risk ratio)

	Dependent Variable Category	
	Third Party Provider	**Reciprocal/Exchange Program**
	RRR	RRR
	(SE)	(SE)
Female	1.163**	0.745***
	(0.059)	(0.050)
Race/Ethnicity		
White	Reference	Reference
Black	0.486***	0.858
	(0.074)	(0.178)
Asian	0.741*	1.257
	(0.101)	(0.183)
Hispanic	0.756**	0.670**
	(0.071)	(0.093)
American Indian/Alaska Native	0.411	0.448
	(0.194)	(0.339)
Native Hawaiian	0.782	3.105
	(0.922)	(3.568)
Two or More Races	0.906	1.078
	(0.132)	(0.219)
Unknown	0.989	1.050
	(0.133)	(0.158)
Age	0.982	1.175**
	(0.045)	(0.069)
High School GPA	0.780***	1.195*
	(0.047)	(0.105)
SAT	0.957*	1.113***
	(0.019)	(0.030)
Major		
Arts and Humanities	Reference	Reference
STEM	0.719***	0.938
	(0.044)	(0.077)
Social and Behavioral Sciences	1.169*	1.005
	(0.078)	(0.112)
Business and Communications	1.317***	1.456***
	(0.093)	(0.137)
Education	1.062	0.516
	(0.239)	(0.205)
Trades	0.507**	0.101***
	(0.122)	(0.061)
Other	1.122	1.775**
	(0.135)	(0.293)
GPA in Term Prior to SA	1.013	1.142*
	(0.044)	(0.074)
Credit Hours Attempted in Term Prior to SA	1.014***	1.013**
	(0.004)	(0.005)
Pell Receipt in Term Prior to SA	0.730**	1.320
	(0.088)	(0.188)
Other Need-Based Aid in Term Prior to SA	0.911	1.045
	(0.090)	(0.128)
	N = 17,718, χ^2 = 10213.20, Pseudo-R^2 = 0.343	

Note. College/University provider is the reference outcome. Reported here are relative risk ratios. Institution included as a fixed effect, not reported here. Standard errors in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Ordered logistic regression results for study abroad program length (odds ratio)

	Dependent Variable Category
	Program Length Longer than 8 Weeks
	OR
	(SE)
Female	1.042
	(0.045)
Race/Ethnicity	
White	Reference
Black	0.671**
	(0.086)
Asian	0.707**
	(0.079)
Hispanic	0.848*
	(0.064)
American Indian/Alaska Native	0.689
	(0.243)
Native Hawaiian	1.048
	(0.913)
Two or More Races	1.074
	(0.133)
Unknown	0.861
	(0.104)
Age	1.017
	(0.040)
High School GPA	0.834***
	(0.043)
SAT	1.076***
	(0.018)
Major	
Arts and Humanities	Reference
STEM	0.755***
	(0.039)
Social and Behavioral Sciences	0.974
	(0.063)
Business and Communications	1.222**
	(0.074)
Education	0.929
	(0.136)
Trades	0.212***
	(0.055)
Other	0.954
	(0.037)
GPA in Term Prior to SA	0.996
	(0.037)
Credit Hours Attempted in Term Prior to SA	1.009**
	(0.003)
Pell Receipt in Term Prior to SA	0.987
	(0.103)
Other Need-Based Aid in Term Prior to SA	1.067
	(0.092)
	N = 17,819, χ 2 = 8151.82, Pseudo-R^2 = 0.337

Note. Program length of 8 weeks or less is the reference outcome. Reported here are odds ratios. Institution included as a fixed effect, not reported here. Standard errors in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$

Limitations

While the CASSIE dataset is remarkable in its size and coverage of a variety of institution types throughout the country, it is limited in not containing any two-year institutions, where low-income students historically have been more likely to enroll (González Canché, 2014). Availability of study abroad opportunities and the dynamics of who participates in them are likely different in the two-year institution context and warrant future exploration. CASSIE institutional representation was also heavily skewed toward public institutions and those private institutions that are represented have some of the highest study abroad participation rates in the dataset. Private institutions generally have higher cost of attendance, often accompanied by high levels of need-based aid. While the institutional fixed effects employed here control for individual institutional differences, the relationships found here between need-based aid and study abroad program type may not be generalizable to other private institutions. Given these aspects of the CASSIE dataset, this study's findings are not generalizable to the universe of US college and universities or to the population of US college students, but they do offer insight into study abroad participation in a large and diverse set of four-year institutions.

At the student level, the CASSIE dataset does not include affective variables -- such as intercultural apprehension, risk tolerance, and social affiliation need -- shown in prior research to shape study abroad decisions (e.g., Goldstein & Kim, 2006; Luo & Jamieson-Drake, 2015). In addition, the first-generation college student status variable was too irregularly reported to be included in the present analysis. These students are underrepresented in study abroad (McDaniel & Van Jura, 2020; National Survey of Student Engagement, 2017) and their differences, on average, from continuing generation students on characteristics such as lower income and more responsibilities outside of pursuing an education (RTI International, 2019) likely shape the relationship between need-based aid and study abroad. In addition, although Pell grant receipt is commonly used in higher education research as a proxy for low-income status, it is inexact (Delisle, 2017). There are multiple reasons why a low-income student may not receive Pell, ranging from a student not filling out the FAFSA form to being ineligible for Pell based on other program requirements unrelated to income.

Finally, the CASSIE dataset relies on dichotomous indicators rather than dollar amounts for financial aid variables. It is likely that higher amounts of need-based aid are more effective in promoting study abroad than lower ones, on average. To the extent that assumption holds, findings here of the relationship of other need-based aid with study abroad decisions likely mask heterogenous effects by aid amount as suggested by Whatley (2017). Indeed, receipt of any need-based aid, including Pell, requires that a family fill out a FAFSA form. Students from low-income households who did not fill out FAFSA forms for any reason (e.g., difficulty meeting deadlines, inadequate household accounting, concerns about privacy) might not have been correctly classified in this research.

Discussion

Notwithstanding numerous empirically demonstrated benefits of studying abroad (Petersdottir et al., 2017; Stebleton et al., 2013), only about 16% of US baccalaureate-seeking students typically avail themselves of this high impact practice during their degree program (IIE, 2020). The participation rate is even lower for historically excluded and underrepresented minority students, first-generation college students, and low-income students, despite arguably greater effect on their academic success (Bell et al., 2021). The most common explanations for low rates of participation revolve around high

direct financial costs and opportunity costs, whether real or supposed (Brux & Fry, 2010; Ecker-Lyster & Kardash, 2022; Soria et al., 2014).

The present study was designed to confirm previous findings about the degree to which low-income status affects the probability that a student will participate in education abroad. Further, the present study addressed two research questions about which little was known. In particular, this study inquired whether—among low-income students (i.e., students receiving Pell grants)—the receipt of additional need-based aid beyond Pell grants substantially increased the likelihood of studying abroad. Finally, it inquired whether—among those students who did elect to study abroad—low-income status was associated with selection of particular study abroad program configurations revolving around program duration and program provider type (home campus, third-party provider, or exchange institution). The research was guided by a theory linking student background and layers of environmental context to educational decision-making (Perna, 2006). Its analyses drew on detailed semester-by-semester data compiled by a consortium that included 36 U.S. institutions with substantial populations of students enrolling in education abroad.

Although Pell grant receipt has been shown to undercount low-income students (Delisle, 2017), we used this common indicator as a proxy for low-income status to confirm previous findings that low-income students are dramatically underrepresented in education abroad. In the present study, about 30% of all students in the total sample qualified as lower income, but only about 17% of students who had ever studied abroad were similarly classified (see Table 2). Of course, estimating from simple relative frequencies can overestimate the apparent effect of variables like family income because they are confounded with so many other educational factors such as choice of institution attended (treated as a fixed effect in our models), credit hours earned, and high school and college GPA. A more conservative estimate was derived after controlling for these factors; low-income students were 3% less likely to engage in education abroad than were students from higher income families (see Table 3).

Because of measurement and design features, the present findings are not directly comparable with those of earlier studies. For example, some previous studies used student self-reported intention to study abroad, rather than actual records of study abroad enrollment (e.g., Salisbury et al., 2009). Even taking into account different methodologies, the present results seem to tell a markedly different story than those reported by Whatley (2017; Whatley & Clayton, 2020) using data from about a decade earlier derived from the Georgia Learning Outcomes of Students Studying Abroad Research Initiative (GLOSSARI). The 2017 study used dollar amounts of need-based aid from all sources to predict study abroad participation, rather than the dichotomous variable used in the present study (i.e., +/- receipt of Pell grant in the first semester of matriculation). It found a positive and seemingly strong association between receipt of need-based aid and participation in education abroad; for every thousand dollars of need-based aid received, students were about 20% more likely to study abroad. A number of factors might explain the discrepancies in findings across these two studies. First, the Whatley data included information about student loans, whereas the present study did not. One can presume strong covariance between loans and need-based aid, but the Whatley study was able to pull apart those funding sources and determine that it was loan amounts rather than grants-in-aid that exerted strong negative impact on the probability of studying abroad. The presumed co-occurrence between loans (that exert a negative impact on participation) and grants (that have a positive impact) might account for diminished and even reversed impact of Pell receipt in the present study. Second, institutions in the earlier GLOSSARI study were all public and limited to a single state. While those same institutions were included in the present CASSIE database, CASSIE's sample was from a later time period and also included a large number of students attending private colleges, where the dynamics of need-based aid may differ. For example, it is possible that many low-income students were receiving

merit-based or other grants-in-aid at private institutions but were less likely to receive that supplemental aid at public institutions. Finally, Whatley and Clayton (2020) found a much higher rate of participation in education abroad among Pell recipients. Reversing the directionality in the present study, 56% of those receiving need-based aid in their first semester studied abroad, whereas only 13% of those who did not receive such financial aid studied abroad, according to that earlier study.

In addition to examining connections between low-income status with rates of education abroad, the present study also assessed the added value of receiving other forms of need-based aid—in addition to Pell grants—among low-income students. Results indicated that receipt of other need-based aid was associated with 1% greater likelihood of studying abroad, relative to low-income students who received Pell grants only (Table 4). The small increase in likelihood may be related to the nature of our need-based aid variable, which is dichotomous and pools together aid from diverse sources (external organizations, institutions, and state and federal governments). Other studies about aid (e.g., Whatley, 2017) suggest that higher amounts may yield larger effects. It may also be the case that specific forms of need-based aid are differentially associated with study abroad participation. For example, an institution or external organization grant, due to its application or awarding process, may be more likely to motivate investment in educational experiences like study abroad than a more bureaucratic state grant. More research is needed to untangle these relationships. Nevertheless, this finding is consistent with Whatley and Clayton (2020), who also found a positive association between education abroad participation and receipt of other need-based aid among low-income students. Accordingly, it seems warranted to advocate for supplementary financial aid resources that take student need into account to promote greater access to education abroad for low-income students.

The most novel contribution of the present study is afforded by the capacity of the CASSIE database to identify design features of the study abroad programs for each student who did participate. Because low-income students in general will be more price sensitive (in terms of both direct and opportunity costs) than their higher-income counterparts, it is presumed that they will differ in the types of programs in which they participate. We examined two such program features: duration and program provider type. The analysis revealed several new insights, not only with respect to the predictive value of need-based aid receipt, but also with respect to control factors like gender and major which, to our knowledge, have never before been systematically examined along with program type.

With respect to program provider type (Table 5), we found that women are 16% more likely than men to participate in third-party provider programs, and about 25% less likely to engage in exchange programs. Historically excluded and underrepresented minority group students are likewise less likely to participate in third-party provider programs, compared with White students. Compared with Arts and Humanities majors, STEM major students are about 28% less likely to enroll with third-party providers, perhaps because they must be more cautious about meeting their major course sequence requirements. On the other hand, Business/Communications majors are about 32% more likely than their counterparts in Arts and Humanities to enroll in third-party provider programs and 46% more likely to enroll in exchange programs. Often, third-party providers present themselves as niche specialists, and as such their business models focus on a particular language (e.g., Spanish), a particular location/region (e.g., West Africa) and/or a particular academic discipline (e.g., Business). While it would require further research, there may be a disproportionate number of third-party providers established to work specifically with business schools compared with other disciplines such as Arts and Humanities. Related here, exchange programs require agreements or memoranda of understanding that are often executed at the academic program or discipline level versus the institutional level, as noted by one of our institutions that had no third-party provider participants.

While it would require further research to determine definitively, certain disciplines like Business may be more easily comparable between different countries and contexts and would therefore more easily foster exchange agreements. For example, a microeconomics course may be more easily translated for credit across different country contexts than a history course, which may be steeped in greater cultural variation. This may result in greater challenges to establishing a fluid exchange agreement. Further research is needed to understand whether the findings around discipline are related to the relative availability of the different types of programs in different host nations. For example, academic programs in communication are relatively rare and uniquely configured in Francophone Africa (Agbobli & Fréire, 2018).

As for financial aid factors, Pell grant recipients were 27% less likely than those not receiving Pell grants to enroll in third-party programs. That reticence may reflect either the reality or perception that such programs are more costly than programs run by one's home institution or exchange programs, which typically preserve home institution tuition costs. In addition, Pell grant students may be most assured that their study abroad participation will be covered by financial aid if it is a home institution sponsored program. It may also be the case that knowledge about or comfort with navigating programs outside a student's home institution is less available to lower income students. Our inquiries at institutions with no third-party participation indeed suggested that all these factors were at work, but further qualitative research is needed to confirm these dynamics more thoroughly. Receipt of other financial aid in addition to Pell grants did not influence program provider type.

With respect to program duration, findings confirmed the anecdotally supported conclusion that historically excluded and underrepresented minority students will generally participate in shorter programs of less than eight weeks. For example, Black students had 33% lower odds than White students of participating in longer duration programs. Major was also a significant factor in the likelihood of participating in a longer program. STEM students had 24% lower odds of participating in long-term programs, compared to Arts and Humanities students, and students whose majors fell into the Trades category had 79% lower odds of selecting a longer duration program. Again, it may be supposed that shorter duration programs interfere less with lock-step sequential required courses. As for financial aid factors, neither Pell grant receipt nor receipt of other need-based financial aid was significantly associated with program length. This finding clearly contradicts the taken-for-granted supposition that shorter term programs are more accessible to lower income students, who are presumed to be more cost sensitive (e.g., Goldstein & Lopez, 2021; Thrush & Victorino, 2016). To those convinced that greater benefits are bestowed through longer programs, our research suggests that while needy students are less likely to study abroad in the first place, those low-income students who do manage to study abroad are not disadvantaged in access to these longer programs. Given that we have not included income *per se* in these models, it may be that the dollar amount of the Pell grant and other need-based aid receipt offer access to different length programs among low-income students. Future research including family income or assessing the dollar amount contribution of other need-based aid for Pell recipients could refine our understanding of these findings linking financial aid and selection of particular program characteristics.

Implications for Practice

In addition to assessing the contribution of international education experiences to undergraduate student success, another of the CASSIE project's aims was to support data utilization for decision making and advocacy. Both education abroad and financial aid professionals can utilize the findings in this study to enhance practices on their campuses and advocate for change. We advocate building a robust relationship between education abroad and financial aid advisors. This collaboration could

be accomplished by setting-up regular check-in meetings, sharing obstacles and collectively brainstorming solutions, and/or developing and participating in cross-training workshops. Education abroad and financial aid advisors should leverage their relationships within their institution, but also importantly, via appropriate external channels, aim to establish and build on policies and processes versus 'starting from scratch.' Anecdotally, the authors of this study find that the challenges facing institutions is not the will to help, but the capacity and bandwidth available to education abroad and financial aid offices to become experts in configuring and awarding financial aid for (all types of) study abroad. We recognize that some study abroad programs are (seen as) more compatible with awarding financial aid and we recommend that those facing capacity issues seek guidance from colleagues at other institutions or from professional organizations. For example, resources related to financial aid and study abroad are provided by the National Association of Student Financial Aid Administrators (National Association of Student Financial Aid Administrators, n.d.). In addition, NAFSA: The Association of International Educators provides resources such as e-learning courses and guides and maintains an Education Abroad Regulatory Practice Federal Financial Aid Subcommittee (NASFA: Association of International Educators, n.d.).

The present findings regarding need-based aid other than Pell warrant attention by financial aid officers. Our findings show that receipt of other need-based aid beyond Pell increased the likelihood of education abroad participation by only 1%. Therefore, an initial question institution could assess is whether all 'other need-based aid' can, in fact, be utilized for the purposes of study abroad. If institutions are looking to increase their education abroad participation rates, then making institutionally awarded aid available, and explicitly for use for education abroad purposes, could be a good place to start. Attention to precise wording when executing a donor's wishes for a scholarship, or an adjustment in allowing an institutionally specific fellowship to be used for passport costs, visa fees, and/or airfare could make a practical difference for an individual student. For example, institutions could employ language such as "these funds can be used for tuition, fees, and costs associated with experiential learning opportunities such as participation in education abroad programs."

Secondly, perhaps there are administrative barriers and unnecessary bureaucratic hoops that could be removed by the institution themselves, or by working with the relevant external organization. For example, some institutions utilize a study abroad scholarship application process that is directly housed within the application to study abroad itself, reducing further barrier to the students who need it the most. Related, there are other institutional barriers that could prohibit or lessen the likelihood of low-income students participating in education abroad. Our findings show that the effect of need-based aid on program type indicated that low-income students were less likely to participate in third-party provider programs. The logical implication here for education abroad and financial aid officers is to ensure that there are substantial home college/university and exchange program types available, and that there are not any limiting university policies that preference the use of third-party providers.

Moreover, the actual dollar amount of 'other need-based aid' available to students could make or break a well-intentioned student's chances of participating in study abroad. While it may be believed that 'every little bit helps,' it may more likely be the case that there are threshold levels whereby some students need a few hundred dollars to cover passport and visa fees, while other students need these fees plus the airfare covered, and other students truly need these fees plus housing, food, etc. coverage while abroad.

Our findings show that participation in education abroad is certainly not just about need-based aid. If one were to only review our descriptive statistics, it would appear as though Pell recipients are about half as likely to be represented in education abroad in that 30% of all students in

our sample were classified as low-income whereas Pell receipt was true of only 17% of education abroad students. Upon first glance, this difference presents Pell status as a powerful stand-alone factor in creating disparity in participation rates. However, our regression model controlling for the effect of many confounding factors shows a smaller unique variance for low-income status in that Pell recipients are only 3% less likely to study abroad when compared to their non-Pell-receipt peers. The implication here is that it is not just the award of need-based aid itself that increases education abroad participation but that coming from a 'low-income' background is part of a constellation of variables that need examining. There may be factors in our models that mediate between low-income status and study abroad participation, and while some are not malleable (e.g., race or gender), others could be. As such, the real work lies in how institutions can overcome the variables that our analyses control for, such as 'GPA in First Term' that are related to both low-income status and study abroad participation. Education abroad and financial aid officers are encouraged to work shoulder-to-shoulder with other campus colleagues to utilize targeted advising to support low-income students. We need a holistic vision to encourage low-income students to participate in high impact practices by simultaneously building attributes such as academic preparation, time management skills, and the ability to overcome stresses. Institutions that have the capacity should direct specific resources at supporting students who apply for federal aid earmarked for study abroad such as the Benjamin A. Gilman International Scholarship (https://www.gilmanscholarship.org/). Education abroad and financial aid offices at institutions who have prioritized advisor trainings and specific support for students throughout their application process have seen increased numbers of student awardees. Interested institutions can review lists of Gilman Top Producing Institutions (Gilman Scholarship, n.d.a) by institution size, access the Gilman Advisor Ambassador Program, and/or register for a Gilman and CLS (Critical Language Studies) Advisor Training Workshop (USA Study Abroad, n.d.) for further information. In summary, our understanding is that while actual funding makes a difference, it is not enough. Students and their families, especially those whose backgrounds may not normalize the study abroad experience, need well-communicated information and resources to access and utilize financial aid for their intended study abroad program.

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Appendix

Table A1

Education abroad program provider percentages by institution

Institution	College or University Provider	Third Party Provider	Exchange Program
IHE 1	90%	10%	0%
IHE 3	38%	14%	48%
IHE 4	93%	0%	7%
IHE 6	93%	3%	4%
IHE 7	94%	0%	6%
IHE 9	66%	25%	8%
IHE 11	90%	2%	8%
IHE 12	94%	0%	5%
IHE 14	77%	11%	12%
IHE 15	90%	0%	10%
IHE 16	47%	41%	12%
IHE 17	99%	0%	1%
IHE 18	85%	4%	11%
IHE 19	23%	62%	16%
IHE 20	96%	4%	0%
IHE 21	22%	68%	10%
IHE 22	65%	26%	9%
IHE 23	95%	2%	2%
IHE 24	80%	16%	4%
IHE 25	54%	40%	6%
IHE 26	58%	32%	9%
IHE 27	50%	42%	8%
IHE 28	34%	52%	14%
IHE 28	17%	63%	21%
IHE 29	87%	7%	6%
IHE 32	94%	3%	3%
IHE 34	75%	15%	10%
IHE 35	93%	0%	7%
IHE 36	89%	0%	11%
Institutions excluded for lack of variability in program provider			
IHE 2	100%	0%	0%
IHE 5	100%	0%	0%
IHE 8	100%	0%	0%
IHE 10	100%	0%	0%
IHE 13	100%	0%	0%