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# The role of institutional contexts for social inequalities in study abroad intent and participation

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## Abstract

We contribute to research on social inequalities in educational attainment by examining the role of institutional contexts for students' study abroad (SA) intent and participation. To do so, we extend the individual-level rational choice model predicting SA intent and participation depending on students' socioeconomic status (SES) into a multi-level model emphasizing the importance of context effects. We test our model based on unique micro-level student data, which we supplement with context data. Examining 18,510 students nested in 69 universities, we provide the first in-depth multi-level analyses of SA intent and participation of students from Japan. In line with findings from many Western countries, our results show that higher-SES students are more likely to (intend to) study abroad. Regarding the role of institutional contexts, we find that programs designed to improve SA opportunity structures hardly affect students' SA intent but significantly positively affect SA participation above and beyond other university-level and student-level characteristics. Importantly, both lower- and higher-SES students benefit from favorable SA opportunity structures. These findings suggest that Japan's recent push toward internationalization of higher education has created relevant SA opportunities for students from different social backgrounds. Still, higher-SES students are currently overrepresented among those studying abroad because they are more likely to select into universities offering favorable SA opportunity structures. Our analysis calls for more research combining individual-level with contextual-level theories and data to better understand the conditions shaping SES-specific SA intent and participation.

**Keywords** International student mobility · Social inequality · Context effect · Rational choice · Life course perspective · Multi-level analysis

## Introduction

Students' socioeconomic status (SES) can strongly influence study abroad (SA) intent and participation. In numerous European countries (Aerts & Van Mol, 2023; Di Pietro, 2020; Netz, 2015), the USA (Salisbury et al., 2009; Simon & Ainsworth, 2012), and Japan (Entrich & Fujihara, 2022; Kobayashi, 2018), students whose parents have higher education degrees, abundant

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Extended author information available on the last page of the article

financial resources, and/or high occupational status (higher-SES students) are more likely to (intend to) study abroad than lower-SES students.<sup>1</sup>

Drawing on cultural reproduction theory (Bourdieu, 1984) and rational choice theory (RCT) (Boudon, 1974; Breen & Goldthorpe, 1997; Erikson & Jonsson, 1996), previous research explained this pattern as the result of individual choices related either to SES-specific endowments with economic, social, and cultural capital (e.g., Brooks & Waters, 2010; Lingo, 2019; Netz & Finger, 2016; Simon & Ainsworth, 2012; Weenink, 2014) or SES-specific cost–benefit assessments and self-assessed probabilities of successfully studying abroad (e.g., Lörz et al., 2016; Netz et al., 2020). From a life course perspective (LCP), the decision to study abroad is also shaped by SES-specific educational biographies. For instance, higher-SES students are more likely to follow educational pathways enabling transnational experiences early in life, which ease later SA participation (Brooks & Waters, 2010; Entrich & Fujihara, 2022; Lörz et al., 2016). More recently, some scholars have acknowledged the role of institutional contexts for students' (SES-specific) chances of studying abroad (Lörz et al., 2016; Schnepf & Colagrossi, 2020; Schnepf et al., 2022; Van Mol & Timmerman, 2014). With institutional contexts being a key aspect of the LCP, it is surprising that research has rarely empirically examined the role of such contexts for (SES-specific) SA intent and participation.

The few empirical studies examining the effects of institutional contexts indicate that differences in the resources of universities concerning excellence-related and student-support-related factors (e.g., the position of universities in international rankings, the mean ability of the student population, and tuition fees) matter for SA uptake (Kramer & Wu, 2021; Schnepf & Colagrossi, 2020; Whatley, 2019). Some of these studies examine how policy interventions without explicit relation to SA nevertheless influence SA intent and participation, with mixed results: Kramer and Wu (2021) report positive effects of the adoption of merit-aid programs on SA participation in the US state of Tennessee. Using a nationwide dataset for the USA, however, Whatley (2019) finds that the implementation of these programs can even discourage students' SA intent and participation.

Previous studies also suggest that the institutional contexts created by policy interventions can influence social inequalities in SA intent and participation. They mainly explain inequalities in SA participation through differences in the SES composition of the respective student bodies at universities; importantly, they do not directly investigate how SA-related policy interventions may influence SA intent and participation of students from different SES groups (Kramer & Wu, 2021; Schnepf et al., 2022). Consequently, research on the role of institutional contexts for (inequalities in) SA intent and participation would benefit from analyses considering programs explicitly designed to enhance SA opportunity structures<sup>2</sup> at universities.

At present, it is unclear whether opportunity structures installed to foster SA participation benefit all students, whether they help reduce social inequalities, or whether they even exacerbate them. Such information is relevant not only for scientific reasons, but also because policies

<sup>1</sup> In this study, we measure students' SES using both parents' annual income. Specifically, we distinguish between lower-, mid-, and higher-SES students. We follow official categories of income brackets calculated for undergraduate students in Japan (for details, see the section "Operationalization of explanatory components in the Japanese context").

<sup>2</sup> We define SA opportunity structures as institutional arrangements shaping SA intent and participation. Such arrangements include the existence of programs to improve access to SA through the provision of scholarships (e.g., ERASMUS+), the establishment of central contact points coordinating SA participation and counseling services (e.g., international offices), ties with international partners (e.g., exchange agreements), and efforts to foster intercultural encounters on campus (e.g., language exchange programs).

to enhance university-level SA opportunity structures could be an effective lever to influence SA intent, participation, and corresponding social inequalities.

We address the delineated research gap focusing on Japan. We consider Japan a well-suited test case, because unlike in the USA or Europe, policy interventions are not designed to reach the majority of students by making funding available to most higher education institutions, e.g., through programs such as ERASMUS+ (European Commission, 2014) or merit-aid programs (as in 29 US states; see Whatley, 2019). Instead, the major goal behind the policy efforts in Japan was to create a few world-class universities with the potential to enter the top 100 international league tables (e.g., the THE World University Rankings) and lead the internationalization of the Japanese society (Ota & Shimmi, 2019; Yonezawa & Shimmi, 2015). Hence, comparatively few universities in Japan received prioritized funding to enhance their SA opportunity structures.<sup>3</sup> This separation into universities with prioritized SA funding and universities without such funding allows us to examine the possible impact of differences in SA opportunity structures on individual SA intent and participation, and their influence on social inequalities. The general scarcity of in-depth empirical research on (social inequalities in) SA intent and participation in Asia further justifies our focus on Japan (Entrich & Fujihara, 2022; Netz et al., 2020; Pham, 2022).

Many studies on SA participation of students from Japan are based on descriptive statistics from the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) (Lassegard, 2013; Tanaka & Manning, 2018). Other empirical studies (mainly in Japanese) rely on small, often highly selective samples of students from specific fields of study within single universities, which mostly do not consider students' SES (Asaoka & Yano, 2009; Kato & Suzuki, 2018; Kuromiya et al., 2016; Lassegard, 2013). The few larger-scale studies considering students' SES highlight the social selectivity of SA intent and participation in Japan: students in secondary schools (Entrich & Fujihara, 2022) and universities (Kobayashi, 2018) are more likely to (intend to) study abroad if their families have a high SES. However, these studies do not examine the influence of SA opportunity structures on social inequalities in SA intent and participation.

To narrow the outlined research gaps, we integrate context effects into the theoretical model of Lörz et al. (2016), which combines elements of rational choice theory (RCT) and the life course perspective (LCP). We test the resulting hypotheses employing multi-level analyses (MLA). MLA allow us to approximate the relative importance of SES and other individual factors relative to contextual factors, and thus to assess the importance of SA opportunity structures for SA intent, participation, and corresponding social inequalities. Using a nationwide and largely unexploited dataset from Japan, which we supplement with university-level data, we provide evidence on whether Japan's recent push toward internationalization of higher education resulted in increasing horizontal inequalities or rather narrowed corresponding SES gaps.

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<sup>3</sup> For example, only 37 of 780 universities in Japan receive funds from the national Top Global University Project (TGUP).

## A theoretical model integrating individual and contextual predictors of SA intent and participation

Existing research tends to examine SA determinants either macro-theoretically, by focusing on push and pull factors at the national level (e.g., Li & Bray, 2007; Vögtle & Windzio, 2022), or micro-theoretically, by focusing on students' decision processes at the individual level (e.g., Lörz et al., 2016; Salisbury et al., 2009). The latter approach was made popular through research applying theories of rational choice (RCT: Boudon, 1974) to explain the frequently observed social inequalities in SA choice (Lörz et al., 2016; Netz et al., 2020).

SA decision-making can be conceptualized as a two-stage process including (1) the *formation of SA intent* and (2) *SA participation*. Both depend on how individuals value the expected *benefits* of SA in relation to its *costs*. If the expected benefits exceed the anticipated costs, RCT predicts students to be likely to (intend to) study abroad.

Drawing on Erikson and Jonsson (1996) and Gambetta (1987), Lörz et al. (2016) extended this basic RCT model to include *performance-related factors* and *students' educational biographies* as further components framing SA decisions. Performance-related factors shape individuals' self-assessed probabilities of successfully studying abroad, which strongly depend on their competencies, such as language skills. The focus on the educational biography stresses the importance of educational experiences and decisions made in the earlier life course. Earlier experiences and decisions create path dependencies which limit or enhance the scope for decision-making in future situations (Breen & Jonsson, 2000; Gambetta, 1987).

Importantly, some scholars have argued that SA intent and participation are not exclusively the result of individual characteristics (Lörz et al., 2016; Schnepf & Colagrossi, 2020; Van Mol & Timmerman, 2014). Instead, institutional contexts at the university level, and SA opportunity structures in particular, may equally frame SA decisions. This view is highly compatible with both RCT and the LCP.

To better conceptualize the SA decision-making process and, thereby, achieve a more holistic understanding of social selectivity in SA intent and participation, we therefore propose a theoretical model comprising five explanatory components: (1) *students' educational biography*, (2) *performance-related factors*, (3) *cost considerations*, and (4) *benefit considerations* at the individual level, and (5) *SA opportunity structures* at the university level. This extension is important for better understanding how social inequality in SA decision-making (micro level) may be enhanced or mitigated by SA opportunity structures at universities (meso level).

### Explanatory components at the individual level

#### Educational biography

The LCP suggests that SA intent and participation are shaped by SES-specific educational biographies. Because higher-SES students tend to receive more educational opportunities to enhance their human capital early on in their lives, they gradually build a cumulative advantage that increases their probabilities of success during later educational and professional transitions (DiPrete & Eirich, 2006).

Accordingly, higher-SES students are more likely to make international experiences in the family context early in life (e.g., holidays abroad), which affect their dispositions

toward later international experiences. Partly because of their school choice and partly because of their parents' resources, higher-SES students are more likely to attend secondary schools offering comprehensive foreign language training and spend time abroad during their school years (Enrich, 2019; Enrich & Fujihara, 2022; Gerhards & Hans, 2013; Weenink, 2014).

Individuals that were mobile once are more likely to move again because their social and psychological costs tend to decrease with additional mobility experiences (DaVanzo, 1981). Consequently, studying abroad becomes more natural for higher-SES students as they grow older, which increases their self-confidence when dealing with other cultures, positively influences their foreign language skills, and increases their chances to study abroad in the future (Brooks & Waters, 2010; Enrich & Fujihara, 2022; Lörz et al., 2016). We therefore expect higher-SES students to be more likely to (intend to) study abroad because they follow more international educational pathways prior to entering university (**H1**).

### Performance-related factors

SES-specific differences in socialization, resources, and parental support produce SES-specific disparities in students' learning habits and abilities. Therefore, higher-SES students tend to show better academic performance than lower-SES students (Boudon, 1974).

According to Jonsson (1999), such performance-related factors can be distinguished into absolute and relative dimensions of ability. Absolute abilities refer to general achievement levels that are relevant for the educational option under consideration. In our case, an example are final school grades, which are often a prerequisite for access to SA scholarships. Moreover, relative abilities indicate self-assessed comparative advantages that may result from specialization in a given field. In our case, an example are the self-assessed foreign language skills, which are usually required to cope with the challenges that students face abroad. Following Lörz et al. (2016) and our argumentation above, we expect that higher-SES students are more likely to (intend to) study abroad because they are more likely to fulfill the performance-related conditions for studying abroad (**H2**).

### Cost considerations

The economic resources of families play a central role in SA decision-making because the financial costs associated with SA participation can be substantial (Asaoka & Yano, 2009; Di Pietro, 2020; Lassegard, 2013; Lörz et al., 2016; Netz, 2015; Netz et al., 2020; Sugawara et al., 2018). To cover these costs, students often depend on additional income or financial support.

Due to their more abundant resources, it should be easier for higher-SES students to accept the financial burden and time loss related to studying abroad. Hence, we expect higher-SES students to be more likely to (intend to) study abroad because they are less likely to depend on student loans and to feel the financial burden associated with SA participation (**H3**).

## Benefit considerations

Studying abroad may have various benefits, including improved foreign language skills, other intercultural competences, global awareness, personal growth, and better labor market outcomes (Di Pietro, 2022; Higuchi et al., 2023; Netz, 2021; Netz & Cordua, 2021; Shimmi et al., 2017; Yokota et al., 2018). Moreover, with higher education enrolment recently topping 80% of an age cohort in schooled societies such as Japan (MEXT, 2022b), competition for relatively scarcer positions on internationalizing labor markets has intensified among highly educated individuals (Baker, 2014; Fujihara & Ishida, 2016). Consequently, the value of university degrees has decreased (Netz & Finger, 2016; Schofer & Meyer, 2005). Applicants nowadays often need to demonstrate more than just formal education. For instance, employers increasingly screen potential employees according to whether they possess intercultural competences and foreign language skills (Kobayashi, 2021; Ota & Shimmi, 2019). Therefore, graduates having SA experience are probably more likely to get hired for coveted positions, because this experience may signal their productivity to employers (Di Pietro, 2022; Enrich & Byun, 2021; Shimmi et al., 2017; Yokota et al., 2018).

RCT and cultural reproduction theories (Bourdieu, 1984; Lucas, 2001) posit that higher-SES students should seek additional qualifications, such as SA experience, to secure key societal positions and maintain their status (Netz & Finger, 2016; Netz & Grüttner, 2021). Accordingly, we expect that higher-SES students are more likely to (intend to) study abroad because they consider SA experience more beneficial to status maintenance (**H4**).

## Explanatory components at the university level

While the discussion about context effects has a long tradition in sociology (Blau, 1960), they are still seldom operationalized in research on (social inequalities in) SA intent and participation. RCT acknowledges that institutional contexts (structure) are important for understanding educational decisions and inequalities in educational opportunities (agency) (Breen & Jonsson, 2000; Erikson & Jonsson, 1996). The LCP further stresses that individuals maintain relationships with social collectives and the socio-regional environment in which they are embedded (Ditton, 2013). Hence, they assume that contexts exert independent effects beyond individual characteristics on individual choices and pathways, and that contexts may interact with individual characteristics.

Thus, whether students (intend to) study abroad should depend on how the structural opportunities provided by universities affect individuals' (SES-specific) cost–benefit assessments and probabilities of successfully studying abroad. Favorable SA opportunity structures should be more readily available at universities with strong international networks, and, especially, abundant SA funds.

However, it is unclear what effects SA opportunity structures have on inequalities in SA intent and participation. The LCP and RCT suggest that higher-SES students should show a higher likelihood of SA intent and participation than lower-SES students because they should make more use of the given SA opportunities for status maintenance purposes (*cultural reproduction thesis*: **H5-1**). By contrast, the cultural mobility model (DiMaggio, 1982) suggests that once lower-SES students consider SA participation an opportunity to acquire valuable cultural capital, they should be equally likely to make use of SA opportunity structures. Hence, universities with favorable SA opportunity structures may equally encourage lower-SES students to (intend to) study abroad by communicating its benefits

for their studies and careers, while also providing support to cover the associated costs. This leads us to the competing hypothesis that lower-SES students attending universities with favorable SA opportunity structures might be equally likely as higher-SES students to (intend to) study abroad (*cultural mobility thesis*: **H5-2**).

## Study abroad in the Japanese context

Japanese policymakers started to promote outbound SA participation late in comparison to many other countries. Domestic students' opportunities to study abroad were traditionally rather limited and considered to be their individual responsibility. This changed in the late 2000s, when international university rankings and demands by international NGOs gradually altered the Japanese higher education landscape. Following two decades of economic recession and the financial crisis of 2008/2009, policymakers acknowledged the value of fostering global human resources for the revitalization of the Japanese economy (Ota & Shimmi, 2019). Universities soon came under pressure to fit the new global university model in order to stay competitive, which urged them to significantly increase inbound and outbound SA participation (Ishikawa, 2009). The continuous decrease in the number of Japanese students seeking entire degrees abroad (2004: 82,945; 2009: 59,923; Fig. 1) eventually led to the government's launch of the "Japan Revitalization Strategy", which aimed to internationalize higher education and enhance SA participation.

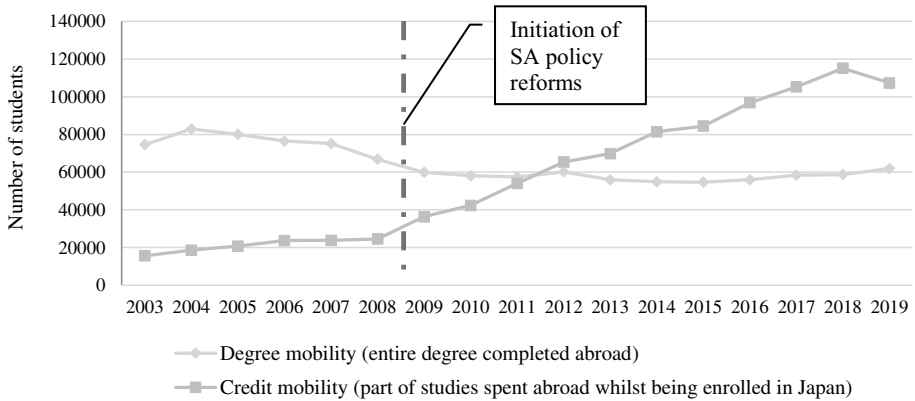
Besides increasing the national budget for SA scholarships<sup>4</sup>, the government installed several large-scale internationalization programs supporting outbound SA participation (Yonezawa & Shimmi, 2015), such as the "Go Global Japan Project" (GGJP: 2012–2016, 42 universities) and its successor, the "Top Global University Project" (TGUP: 2014–2023, 37 universities). Selected universities were expected to promote the internationalization of Japanese universities through a stronger internationalization of university structures, the establishment of exchange agreements with foreign universities, the installment of SA programs, and university scholarship programs (Ota & Shimmi, 2019; Yonezawa & Shimmi, 2015). Besides competing to recruit more international students, universities were encouraged to significantly improve their SA opportunity structures for domestic students to perform better on global rankings (Ishikawa, 2009).

As Fig. 1 illustrates, this revitalization strategy was highly successful: the number of degree-mobile students remained roughly on a similar level and the number of students spending part of their studies abroad increased more than fourfold between 2008 (24,508) and 2019 (107,346). In relative terms, the proportion of the Japanese undergraduate student population studying abroad peaked at 3.71% in 2018, compared to less than 1% in 2008 (own calculation based on Cabinet Secretariat, 2020).

Importantly, SA funds were distributed only to selected institutions, implying that SA opportunity structures differ notably across Japanese universities: especially high-ranking universities with generally larger proportions of higher-SES students were most successful in securing SA funds (Yonezawa & Shimmi, 2015). Hence, SES-specific educational biographies and considerations of costs, benefits, and skill-related probabilities of success may not be the only factors explaining

<sup>4</sup> The MEXT substantially increased the budget for scholarships of the Japan Student Services Organization (JASSO) since 2009 and implemented a new program called *Tobitate! Ryūgaku Japan* (Leap for Tomorrow! Study Abroad Japan) in 2013. Whereas JASSO officially aims to "provide scholarships for achieving students who find it difficult to study due to financial reasons" (<https://www.jasso.go.jp/en/about/organization/jigyougaiyou.html>), the MEXT's *Tobitate!*-program is strictly merit-based (<https://tobitate.mext.go.jp/about/english.html>).





**Fig. 1** Number of Japanese university students studying abroad (2003–2019). *Data source:* MEXT (2022a)

why lower-SES students tend to be less likely to show SA intent and participation. The fact that they are clustered in universities with relatively poorer SA opportunity structures could also explain the oft-reported patterns of SA inequality (Netz et al., 2020; Schnepf et al., 2022).

## Empirical strategy

### Methods

To test our hypotheses, we need to distinguish between individual and contextual effects. Therefore, we use multi-level analyses (MLA). Context effects occur if contextual variables show significant effects on the examined dependent variables under control of relevant individual-level variables (Ditton, 2013).

To test **H1** to **H4**, we run individual-level stepwise binary logistic regressions of SA intent and participation without controlling for university-level variables. This approach corresponds to most existing studies on the social selectivity of SA intent and participation.

To test **H5-1/2**, we estimate stepwise multi-level mixed-effects logistic regressions of SA intent and participation under control of both individual and contextual variables. Modeling cross-level interaction effects, we test whether higher-SES or lower-SES students benefit more from favorable SA opportunity structures.

MLA allow us to determine the relative importance of SES and other individual factors relative to contextual factors based on the variance partition coefficient (VPC<sup>5</sup>). The VPC reflects the proportion of variation in SA intent and participation, respectively, resulting from differences between universities. We can thus examine the outcomes of SA policy interventions at both the individual level (e.g., students receiving national scholarships) and the university level (e.g., universities receiving funds to foster SA structures).

We estimated all regressions using Stata 16. We report logit coefficients in all models and average marginal effects (AME) in the text where possible.<sup>6</sup>

<sup>5</sup> We make use of the intraclass correlation coefficient, ICC (see Sommet & Morselli, 2017).

<sup>6</sup> To our knowledge, the post-estimation of AME in MLA based on imputed data is not yet possible in Stata. We therefore report the MLA results as logits.

## Data

We use largely unexploited data from the 53rd wave of the Japanese Campus Life Survey, a nationwide web-based questionnaire survey carried out in 2017.<sup>7</sup> The survey has been carried out every year since 1963 by the Japanese National Federation of University Co-operative Associations. We chose the 53rd survey wave because it comprises an extended sample of 18,999 undergraduate students (enrolled in B.A. programs) clustered within 75 universities. The sample covers different types of universities in all major regions and positioned across the entire spectrum of national and international rankings.

The Campus Life Data are exceptional because they enable the examination of the association of SES with SA intent and participation — at both the individual and university level — under control of multiple other relevant covariates.

Intending to produce unbiased estimates, we limited our analytical sample to universities with at least 100 study participants. This reduced the number of considered universities to 69 and the number of respondents to 18,510.

## Operationalization of explanatory components in the Japanese context

We examine two (individual-level) dependent variables. These are captured through dummy variables indicating whether undergraduate students intended to study abroad (*SA intent*) and whether they had already studied abroad (*SA participation*) at the time of the survey. We concentrate on studying abroad in formalized settings (*ryûgaku*) to examine a neat treatment directly related to university-level SA opportunity structures.<sup>8</sup> In our sample, 19.2% ( $N=3549$ ) of students expressed SA intent. Only 4.6% ( $N=849$ ) had already studied abroad.

We approximate students' SES based on the annual income of their parents' household(s). Although we acknowledge that SES is a multi-dimensional construct comprising other important facets such as parents' educational attainment and occupational prestige, we are confident that our findings are reliable: In fact, income, the occupational prestige, and educational attainment of parents are highly correlated in Japan (Chinen, 2022; Entrich & Fujihara, 2022; Kawaguchi, 2020). Therefore, household income also reflects these other important dimensions of SES. Furthermore, studies using household income as an SES indicator reported robust effects on SA intent and participation under control of parental education and occupational prestige as well as students' educational biography and performance (Entrich & Fujihara, 2022; Gerhards & Hans, 2013; Kim & Lawrence, 2021; Kobayashi, 2018).<sup>9</sup>

To achieve a high response rate, the survey captured official categories of income brackets (for details, see MHLW, 2018), and collected information on household income on an 8-digit

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<sup>7</sup> In Japan, the academic year starts in April. Considering that the data collection took place in October and November 2017, students were thus surveyed at the beginning of the second semester of their respective academic year. Consequently, students in their first academic year had been enrolled for at least one semester before data collection took place, and those in their final year still had the opportunity to study abroad before graduation in March.

<sup>8</sup> Supplementary analyses including other prominent types of SA (internships and language travel abroad) show similar results (available upon request).

<sup>9</sup> Our data do not contain information on parents' educational attainment. However, we ran robustness checks using a 15-digit categorical variable for occupational prestige of the main earner recoded based on categories from the EGP-related class scheme for Japan by Ishida et al. (1991), differentiating according to supervisory status (e.g., managerial or not) and firm size. The results (available upon request) show robust effects for parents' income under control of parents' occupational prestige.

ordinal scale separately for the main earner (traditionally the father) and other family members (traditionally the mother). We combined both main income sources to capture the total household income of the students' parents. We used this information to distinguish higher-SES ( $\geq 10$  million yen per year), lower-SES ( $< 5$  million yen per year), and mid-SES students ( $\geq 5$  million to  $< 10$  million yen, used as the reference category; for a similar grouping see Kawaguchi, 2020).<sup>10</sup> The constructed SES measure approximately reflects the respective income groups among undergraduate students in Japan (higher-SES: top quintile of income distribution; lower-SES: bottom quintile of income distribution; see JASSO, 2020, p. 57).

A first descriptive analysis reveals substantial differences between higher- and lower-SES groups: Among higher-SES students, 21.9% expressed SA intent at the time of the survey, and 6.7% had studied abroad. Only 17.3% of lower-SES students expressed SA intent, and 3.6% had studied abroad.

Table 1 illustrates the explanatory variables capturing the five theoretical components meant to explain these inequalities in SA intent and participation. It shows how each theoretically grounded independent variable correlates with SA intent and participation, and compares the mean values of each variable across SES groups.

We operationalize the first explanatory component (*educational biography*) using students' *pre-university SA participation* to predict SA intent and participation, and their *SA participation at university* to predict further SA intent. All three variables positively correlate with each other.<sup>11</sup> Moreover, higher-SES students are more likely than lower-SES students to study abroad at secondary school and to (intend to) study abroad during higher education (supporting **H1**).

We measure *performance-related factors* considering (1) whether students received a *merit-based scholarship* (a proxy for their absolute ability), (2) their *focus on studying* (a proxy for their relative ability), which was measured through their perception of the role of studies and related activities as opposed to non-educational preferences (hobbies, clubs, work, and friends), and (3) students' subjectively assessed ability to successfully complete their bachelor's degree (following Lörz et al., 2016, this can be considered a proxy for their self-assessed *probability of successfully studying abroad*). The receipt of merit-based scholarships positively correlates with SA intent and participation. Importantly, lower-SES students are more likely to receive such scholarships than higher-SES students, which suggests that scholarships may reduce social inequality in SA participation (contrasting **H2**). A greater focus on studying positively correlates with SA participation, but not with SA intent. There are no significant differences between SES groups in this regard (contrasting **H2**). A more optimistic self-assessed probability of success positively correlates with SA participation, but negatively correlates with SA intent. The negative correlation results from the fact that the proportion of students believing they will successfully complete their degree increases with each study year, while SA intent declines (42% of first-year students express SA intent, compared to only 9.8% of fourth-year students), likely because most students in their later study years prepare for job-hunting (in their third study year, for instance, already 75% of students in our sample report job-hunting plans). In line with our assumptions, higher-SES students consider their probabilities of success slightly more optimistically (supporting **H2**).

<sup>10</sup> We omit mid-SES students in the descriptive analyses to be able to examine inequalities between higher- and lower-SES students via significance tests.

<sup>11</sup> In the text summarizing descriptive findings, we only report correlations that are significant at the 5-percent level.

**Table 1** Correlation of explanatory variables with SA intent and participation as well as means for SES groups

Explanatory component	Correlation with SA intent	Correlation with SA participation	Means and (SD) for SES groups			Sig.
			Higher SES	Lower SES		
Individual level (N = 18,510)						
<i>Educational biography</i> (H1)						
Pre-university SA participation (vs. none)	0.102***	0.023**	0.038	0.017		***
University SA participation (vs. none)	0.090***	n.a	0.067	0.036		***
<i>Performance-related factors</i> (H2)						
Merit-based scholarship (vs. none)	0.027***	0.025***	0.012	0.083		***
Focus on studying (vs. other focus)	0.012	0.028***	0.399	0.401		n.s
Probability of success (0, not sure to 3, sure)	-0.033***	0.015*	2.051 (0.02)	2.009 (0.02)		*
<i>Cost considerations</i> (H3)						
Willingness to bear SA costs (vs. not willing)	0.342***	0.125***	0.075	0.063		*
Student loan from JASSO (vs. none)	-0.028***	-0.020**	0.117	0.553		***
<i>Benefit considerations</i> (H4)						
Aspired-to future work conditions (sum score indicating how favorable conditions should be)	0.084***	0.029***	3.489 (0.04)	3.662 (0.04)		***

Table 1 (continued)

Explanatory component		Correlation with SA intent	Correlation with SA participation	Means and (SD) for SES groups		Sig.
				Higher SES	Lower SES	
University level (N = 69)						
SA opportunity structures (H5)						
	Outbound SA program (vs. none)	0.087***	0.097***	0.531	0.363	***
	Outbound SA rate: high (vs. no high rate)	0.088***	0.078***	0.346	0.193	***
	Inbound SA rate: high (vs. no high rate)	0.080***	0.100***	0.376	0.244	***
	THE ranking Japan (1, not listed to 4, among top 20)	0.090***	0.078***	2.419 (0.03)	1.946 (0.03)	***

The left-hand columns show Pearson's correlations of each explanatory variable with SA intent and participation. The right-hand columns show means and standard deviations (in parentheses) for students from families with an annual household income of at least 10 million yen (Higher SES) and from families with an annual household income of less than 5 million yen (Lower SES). The last column indicates significant differences between SES groups (Sig.)

*n.a.* = not applicable

*Significance levels:* *n.s.* = not significant; \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

*Data source:* Campus Life Data (2017)

We operationalize *cost considerations* considering (1) students' *willingness to bear SA costs* by prioritizing saving money for studying abroad and (2) the receipt of a *student loan from JASSO* as an indicator of a difficult financial situation independent of performance. Students willing to bear SA costs are substantially more likely to report SA intent and participation, and higher-SES students are slightly more likely to be willing to bear these costs (supporting **H3**). Students are less likely to (intend to) study abroad if they receive a student loan from JASSO.<sup>12</sup> Lower-SES students depend far more strongly on student loans (55.3% vs. 11.7% of higher-SES students) and therefore must carefully weigh whether studying abroad is an option considering future debts from loan repayments (supporting **H3**).

To assess students' *benefit considerations*, we computed a sum score of several items describing students' *aspired-to future work conditions*. This variable indicates whether students favor more traditional employment relationships with long working hours, little vacation, and strict hierarchies, or more independent, flexible, family-friendly, and mobile working styles with similar or higher levels of financial security. Students aspiring to the latter (more advantageous) job conditions are more likely to (intend to) study abroad, with lower-SES students being more likely to aspire to more advantageous job conditions (contradicting **H4**). This resonates with the notion that lower-SES students might become culturally mobile through SA participation.

Finally, we operationalize *SA opportunity structures* using four indicators: (1) a variable indicating whether the attended university received government funds to promote SA participation via one or both top MEXT programs, the GGJP and TGUP (*outbound SA program*), (2) a variable indicating whether the number of students sent abroad via the home university is particularly high, i.e., exceeding 1000 students per annum (*outbound SA rate*), (3) a variable indicating whether the share of international students studying at a university is particularly high, i.e., exceeding 1000 students per annum (*inbound SA rate*), and (4) the university's position in the 2017 Times Higher Education ranking for Japan (*THE ranking Japan*). A high THE ranking position reflects extensive institutional exchange channels for students (Yonezawa & Shimmi, 2015). All four indicators positively correlate with SA intent and participation, with higher-SES students being substantially more likely to attend universities with favorable SA opportunity structures than lower-SES students, judging by all four indicators (indicating support for **H5-1**).

Following Kobayashi (2018) and Schnepf et al. (2022), we control for several other covariates associated with SA intent and participation at the individual and the university levels to obtain unbiased effects. The individual-level controls include *gender*, *study year*<sup>13</sup>, and *field of study*. The university-level controls include the *mean absolute ability* of the student population, measured by the mean *Hensachi* score necessary to achieve university entrance in 2017 (which indicates the selectivity of access to different universities), the lowest possible first-semester *tuition fees* as an indicator for the financial burden imposed by university attendance, and the *type of university*. Following Yonezawa and Shimmi (2015), the latter variable captures four major categories: national (most common type of public university), local public (funded by city or prefectural governments), private (most common university type), and former imperial university (a former flagship

<sup>12</sup> Most Japanese 'scholarships' are not grants, but student loans that significantly increase the pressure on recipients to graduate quickly. Hence, they may represent a barrier to SA intent and participation.

<sup>13</sup> The timing of SA is important in Japan. SA-related opportunity costs increase toward the end of studies because students are typically recruited by companies in their third or fourth study year, during the so-called job-hunting season, which typically lasts from December to September (*shūshyoku-katsudō*). Students studying abroad may miss this screening process, including job fairs, aptitude and knowledge tests, and interviews (Ota & Shimmi, 2019).

type of national university; for details on all variables, see Table 6 in the supplementary information).

### Missing data

Only four variables contain missing values (Table 6 in the supplementary information). Household income, our measure of SES, contains most missing values ( $N=5437$  or 29.4% among main earners;  $N=5901$  or 31.9% among additional earners), followed by the willingness to bear SA costs ( $N=3545$ , 19.2%), probability of success ( $N=256$ , 1.4%), and focus on studying ( $N=225$ , 1.2%). Analyses of missing patterns indicated that our data are missing at random (MAR) and not missing completely at random (MCAR). Hence, to avoid a reduction of our analytic sample and biased estimates, we multiply imputed the missing values (Grund et al., 2018). We imputed 30 datasets including all covariates, the outcome variables, and auxiliary variables (parental occupation, university admission method, and region) in the predictor models using the routine for multiple imputation by chained equations (MICE) in Stata 16.

### Empirical results

Tables 2 and 3 show the results of stepwise logistic regressions of students' SA intent (SAI-Log1 to SAI-Log5) and SA participation during their undergraduate studies (SA-Log1 to SA-Log5).

#### Individual-level logistic regression analyses

Model SAI-Log1 confirms significant differences in SA intent between SES groups even under control of gender (higher likelihood among females), study year (decreasing likelihood with rising study year), and field of study (highest likelihood in the liberal arts). In reference to mid-SES students, the logits of higher-SES students to express SA intent are 0.190 (corresponding to an AME of 3.0%) and the logits of lower-SES students are  $-0.104$  (AME:  $-1.5\%$ ).

Adding students' educational biography (SAI-Log2) considerably decreases the strength and significance level of the relationship between SES and SA intent. Both past SA participation at secondary school and past SA participation at university positively associate with students' likelihood of expressing SA intent, supporting the thesis that social inequalities accumulate over the life course (**H1**).

The inclusion of performance-related factors (SAI-Log3) hardly changes the effect of SES on SA intent, although the coefficients for received scholarships and the focus on studying are highly significant predictors. Our proxy of the self-assessed probability of success does not significantly affect SA intent.

Cost considerations (SAI-Log4) are important for SA intent. Students willing to actively save money for SA are much more likely to express SA intent. However, we find no notable effect of receiving a student loan from JASSO.

Our proxy of benefit considerations (SAI-Log5) is positively associated with SA intent. Students striving for more favorable future working conditions are slightly more likely to report SA intent.

**Table 2** Binary logistic regressions of study abroad intent (SAI) of Japanese university students (logits)

	SAI-Log1		SAI-Log2		SAI-Log3		SAI-Log4		SAI-Log5	
	B	SE	B	SE	B	SE	B	SE	B	SE
Individual level (N = 18,510)										
SES										
Higher-SES (vs. mid-SES)	.190 ***	.054	.156 ***	.054	.163 **	.056	.158 **	.059	.164 ***	.059
Lower-SES (vs. mid-SES)	-.104 +	.055	-.084	.055	-.108 +	.056	-.088	.061	-.099	.061
Educational biography (H1)										
Pre-university SA participation (vs. none)			1.093 ***	.102	1.087 ***	.102	1.002 ***	.109	.991 ***	.110
University SA participation (vs. none)			1.217 ***	.079	1.201 ***	.080	.871 ***	.089	.867 ***	.089
Performance-related factors (H2)										
Merit-based scholarship (vs. none)					.413 ***	.103	.398 ***	.110	.378 **	.109
Focus on studying (vs. other focus)					.189 ***	.041	.099 *	.043	.097 *	.043
Probability of success (0, not sure to 3, sure)					.000	.023	.011	.025	.016	.025
Cost considerations (H3)										
Willingness to bear SA costs (vs. not willing)							2.305 ***	.077	2.288 ***	.077
Student loan from JASSO (vs. none)							-.075	.048	-.077	.048
Benefit considerations (H4)										
Aspired-to future work conditions (sum score)									.097 ***	.010
Controls										
Female (vs. male)	.235 ***	.039	.183 ***	.040	.181 ***	.040	.123 **	.043	.092 *	.043
Study year (from 1 to 6)	-.426 ***	.018	-.466 ***	.018	-.476 ***	.019	-.406 ***	.020	-.414 ***	.020
Field of study: Liberal arts (vs. science)	.144 **	.042	.115 **	.043	.133 **	.043	.047	.046	.041	.046
Field of study: Medicine (vs. science)	.164 **	.061	.174 **	.061	.149 *	.062	.193 **	.064	.227 **	.065
Intercept	-.709 ***	.054	-.682 ***	.055	-.747 ***	.071	-.1001 ***	.079	-.1327 ***	.085
Pseudo R <sup>2</sup> (McFadden)	.041		.059		.061		.128		.134	

Significance levels: \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ ; + $p < 0.10$ 

Data source: Campus Life Data (2017)



**Table 3** Binary logistic regressions of study abroad participation (SAP) of Japanese university students (logits)

	SAP-Log1		SAP-Log2		SAP-Log3		SAP-Log4		SAP-Log5	
	B	SE	B	SE	B	SE	B	SE	B	SE
Individual level (N = 18,510)										
SES										
Higher-SES (vs. mid-SES)	.287 **	.096	.279 **	.096	.290 **	.096	.268 **	.099	.269 **	.099
Lower-SES (vs. mid-SES)	-.302 **	.111	-.300 **	.112	-.340 **	.113	-.309 **	.116	-.312 **	.116
Educational biography (H1)										
Pre-university SA participation (vs. none)			.639	.187	.631 **	.188	.447 *	.192	.440 *	.193
Performance-related factors (H2)										
Merit-based scholarship (vs. none)					.631 ***	.168	.617 ***	.171	.607 ***	.171
Focus on studying (vs. other focus)					.178 *	.075	.096	.076	.095	.076
Probability of success (0, not sure to 3, sure)					.031	.054	.054	.054	.055	.054
Cost considerations (H3)										
Willingness to bear SA costs (vs. not willing)							1.786 ***	.109	1.776 ***	.109
Student loan from JASSO (vs. none)							-.101	.086	-.102	.086
Benefit considerations (H4)										
Aspired-to future work conditions (sum score)									.029	.018
Controls										
Female (vs. male)	.638 ***	.076	.629 ***	.076	.630 ***	.077	.587 ***	.078	.575 ***	.078
Study year (from 1 to 6)	.557 ***	.032	.563 ***	.032	.551 ***	.033	.658 ***	.035	.656 ***	.035
Field of study: Liberal arts (vs. science)	.430 ***	.080	.427 ***	.080	.459 ***	.083	.410 ***	.085	.409 ***	.085
Field of study: Medicine (vs. science)	-.415 **	.121	-.426 ***	.121	-.443 ***	.124	-.486 ***	.127	-.475 ***	.127
Intercept	-5.108 ***	.128	-5.134 ***	.129	-5.269 ***	.170	-5.712 ***	.182	-5.805 ***	.191
Pseudo R <sup>2</sup> (McFadden)	.069		.071		.074		.111		.111	

Significance levels: \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ ; + $p < 0.10$ 

Data source: Campus Life Data (2017)

Interestingly, neither the introduction of performance-related factors (**H2**) nor of cost considerations (**H3**) and benefit considerations (**H4**) further decrease the SES gap in SA intent. The added variables increasingly explain the variance of the dependent variable ( $R^2$  rises from 0.041 to 0.134), but only the variables capturing SES-specific educational biographies can notably explain the effect of SES on SA intent (**H1**).

The analysis of SA participation (Table 3) reveals similar effects of SES and most explanatory variables. In model SAP-Log1, the logits of expressing SA participation are 0.287 higher for higher-SES students (AME: 1.4%) and  $-0.302$  lower for lower-SES students (AME:  $-1.1\%$ ) compared to mid-SES students. The SES effect is robust across models SAP-Log2 to SAP-Log5. Although individual-level factors related to students' educational biography, performance, and cost considerations show similar effects on SA participation to those on SA intent, the association of SES and SA participation is not significantly reduced by considering these factors (contradicting **H1** to **H4**).

### Multi-level logistic regression analyses

To examine contextual factors beyond individual characteristics, Table 4 presents the first set of multi-level mixed-effects logistic regressions of SA intent. The null model SAI-MLA0, which only measures the random effects of universities, shows that only 3.4% of the variance in SA intent stems from differences between universities. This indicates that the role of universities for promoting SA intent is rather limited. Whether universities matter for social inequalities in SA intent is examined in the following models.

Model SAI-MLA1 includes the individual-level variables from model SAI-Log5 and additionally accounts for the clustering of students in different universities.

Model SAI-MLA2 adds variables capturing the university-level SA opportunity structures. A higher position in the THE ranking is positively associated with SA intent. Other variables capturing SA opportunity structures, however, do neither significantly affect SA intent nor notably change the effects of SES on SA intent.

To examine whether higher- or lower-SES students benefit more from favorable SA opportunity structures (**H5-1/2**), model SAI-MLA3 shows cross-level interactions between SES and SA program availability: the effects of being enrolled at a university participating in the TGUP and/or GGJP do not differ significantly across SES groups — with the exception of lower-SES students being significantly more likely to intend to study abroad if they are enrolled at a university offering one of these programs. However, supplementary analyses (available upon request) show that the gap in SA intent between higher- and lower-SES students enrolled in universities with such a major SA program is statistically insignificant (contradicting **H5-1** but supporting **H5-2**). All added variables decrease the VPC from 3.4% (SAI-MLA0) to 0.6% (SAI-MLA3), indicating that about 82% of the variance explained by university variation is accounted for in our model. The variables reflecting SA opportunity structures alone account for about 55% of the VPC.

Table 5 shows MLA results for SA participation. In contrast to the null model for SA intent, the VPC for model SAP-MLA0 shows that 14% of the variance in SA participation (compared to only 3.4% for SA intent) stems from differences between universities. The models SAP-MLA1 to SAP-MLA3 yield broadly similar results as the MLA of SA intent. In reference to the individual-level logit model (SAP-Log5), however, the

**Table 4** Multi-level mixed-effects logistic regressions of study abroad intent (SAI) of Japanese university students (logits)

	SAI-MLA0		SAI-MLA1		SAI-MLA2		SAI-MLA3	
	B	SE	B	SE	B	SE	B	SE
Individual level (N = 18,510)								
<i>SES</i>								
Higher-SES (vs. mid-SES)	.117 *	.051	.111 *	.051	.111 *	.051	.105	.073
Lower-SES (vs. mid-SES)	-.146 **	.052	-.138 **	.052	-.138 **	.052	-.175 *	.069
<i>Educational biography (H1)</i>								
Pre-university SA participation (vs. none)	.982 ***	.110	.976 ***	.110	.976 ***	.110	.977 ***	.110
University SA participation (vs. none)	.798 ***	.090	.782 ***	.090	.782 ***	.090	.782 ***	.090
<i>Performance-related factors (H2)</i>								
Merit-based scholarship (vs. none)	.343 **	.109	.321 **	.109	.321 **	.109	.324 **	.109
Focus on studying (vs. other focus)	.114 **	.043	.118 **	.043	.118 **	.043	.118 **	.043
Probability of success (0, not sure to 3, sure)	-.006	.024	-.009	.024	-.009	.024	-.009	.024
<i>Cost considerations (H3)</i>								
Willingness to bear SA costs (vs. not willing)	2.284 ***	.071	2.269 ***	.071	2.269 ***	.071	2.269 ***	.071
Student loan from JASSO (vs. none)	-.030	.048	-.016	.048	-.016	.048	-.017	.048
<i>Benefit considerations (H4)</i>								
Aspired-to future work conditions (sum score)	.100 ***	.010	.099 ***	.010	.099 ***	.010	.099 ***	.010
<i>Controls</i>								
Female (vs. male)	.159 ***	.044	.176 ***	.044	.176 ***	.044	.177 ***	.044
Study year (from 1 to 6)	-.425 ***	.020	-.426 ***	.020	-.426 ***	.020	-.426 ***	.020
Field of study: Liberal arts (vs. science)	.082	.052	.085 +	.051	.085 +	.051	.085 +	.051
Field of study: Medicine (vs. science)	.243 ***	.069	.240 ***	.068	.240 ***	.068	.239 ***	.068

Table 4 (continued)

University level (N=69)								
<i>SA opportunity structures (H5)</i>								
Outbound SA program: TGUP and GGJP (vs. none)	.112	.132	.135	.142				
Outbound SA program: TGUP or GGJP (vs. none)	.082	.096	.012	.107				
Outbound SA rate: high (vs. no high rate)	.060	.110	.064	.111				
Inbound SA rate: high (vs. no high rate)	-.148	.134	-.145	.135				
THE ranking Japan (1, not listed to 4, among top 20)	.097 **	.032	.097 **	.033				
<i>Controls</i>								
Mean absolute ability (Hensachi score)	.012 +	.006	.013 *	.006				
Tuition fees (highest first-semester fees)	-.000	.000	-.000	.000				
University type: national (vs. former imperial)	-.118	.123	-.118	.124				
University type: local public (vs. former imperial)	-.254	.172	-.255	.173				
University type: private (vs. former imperial)	-.157	.134	-.158	.135				
<i>Cross-level interactions (H5-1/2)</i>								
Higher-SES group×outbound SA program: both			-.037	.126				
Higher-SES group×outbound SA program: one			.053	.117				
Lower-SES group×outbound SA program: both			-.117	.140				
Lower-SES group×outbound SA program: one			.229 +	.122				
<i>Random effects</i>								
Intercept	-1.488 ***	.046	-1.361 ***	.092	-2.092 ***	.407	-2.084 ***	.410
Standard deviation intercept	.342	.038	.302	.037	.144	.033	.146	.032
VPC (ICC)	.034	.027		.006			.006	

Significance levels: \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ ; + $p < 0.10$ 

Data source: Campus Life Data (2017)

**Table 5** Multi-level mixed-effects logistic regressions of study abroad participation (SAP) of Japanese university students (logits)

	SAP-MLA0		SAP-MLA1		SAP-MLA2		SAP-MLA3	
	B	SE	B	SE	B	SE	B	SE
Individual level (N = 18,510)								
<i>SES</i>								
Higher-SES (vs. mid-SES)	.174 *	.087	.164 +	.087	.249 +	.087	.249 +	.146
Lower-SES (vs. mid-SES)	-.336 **	.101	-.323 **	.101	-.285 +	.101	-.285 +	.155
<i>Educational biography (H1)</i>								
Pre-university SA participation (vs. none)	.376 +	.195	.366 +	.195	.364 +	.195	.364 +	.196
<i>Performance-related factors (H2)</i>								
Merit-based scholarship (vs. none)	.443 *	.175	.418 *	.175	.422 *	.175	.422 *	.180
Focus on studying (vs. other focus)	.109	.077	.117	.077	.117	.077	.117	.077
Probability of success (0, not sure to 3, sure)	.008	.053	-.004	.053	-.004	.053	-.004	.053
<i>Cost considerations (H3)</i>								
Willingness to bear SA costs (vs. not willing)	1.681 ***	.105	1.675 ***	.104	1.674 ***	.104	1.674 ***	.104
Student loan from JASSO (vs. none)	-.081	.088	-.065	.088	-.065	.088	-.065	.088
<i>Benefit considerations (H4)</i>								
Aspired-to future work conditions (sum score)	.026	.018	.026	.018	.026	.018	.026	.019
<i>Controls</i>								
Female (vs. male)	.707 ***	.081	.724 ***	.081	.723 ***	.081	.723 ***	.081
Study year (from 1 to 6)	.651 ***	.035	.653 ***	.035	.653 ***	.035	.653 ***	.035
Field of study: Liberal arts (vs. science)	.301 **	.097	.335 ***	.095	.336 ***	.095	.336 ***	.095
Field of study: Medicine (vs. science)	-.421 **	.136	-.432 ***	.135	-.431 **	.135	-.431 **	.135

**Table 5** (continued)

University level (N=69)									
<i>SA opportunity structures (H5)</i>									
Outbound SA program: TGUP and GGJP (vs. none)	.745 **	.291	.795 **	.304					
Outbound SA program: TGUP or GGJP (vs. none)	.404 +	.215	.439 +	.231					
Outbound SA rate: high (vs. no high rate)	.034	.236	.041	.236					
Inbound SA rate: high (vs. no high rate)	.631 *	.289	.631 *	.289					
THE ranking Japan (1, not listed to 4, among top 20)	.060	.075	.061	.075					
<i>Controls</i>									
Mean absolute ability ( <i>Hensachi score</i> )	.010	.014	.010	.015					
Tuition fees ( <i>highest first-semester fees</i> )	.000	.000	.000	.000					
University type: national (vs. former imperial)	.852 **	.272	.852 **	.273					
University type: local public (vs. former imperial)	.957 *	.386	.954 *	.386					
University type: private (vs. former imperial)	.495 +	.300	.493	.300					
<i>Cross-level interactions (H5-1/2)</i>									
Higher-SES group×outbound SA program: both			-.123	.210					
Higher-SES group×outbound SA program: one			-.136	.209					
Lower-SES group×outbound SA program: both			-.131	.247					
Lower-SES group×outbound SA program: one			-.004	.235					
<i>Random effects</i>									
Intercept	-3.361 ***	.103	-5.974 ***	.210	-7.904 ***	.922	-7.936 ***	.924	
Standard deviation intercept	.733	.084	.653	.078	.373	.065	.373	.065	
VPC (ICC)	.140	.115	.041	.041					

Significance levels: \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ ; + $p < 0.10$

Data source: Campus Life Data (2017)

effects of SES on SA participation decrease when considering the clustering of students in universities (SAP-MLA1).

The effects of SES on SA participation further decrease when considering SA opportunity structures and university-level control variables (SAP-MLA2). Importantly, model SAP-MLA2 shows that students clustered in universities with favorable SA opportunity structures are more likely to study abroad, especially if they attend universities funded through both the GGJP and TGUP. Overall, the included university-level variables decrease the VPC from 14% (SAP-MLA0) to 4.1% (SAP-MLA2), and thus explain about 71% of the variance in SA participation across universities. The variables reflecting SA opportunity structures alone account for about 31% of the VPC.

Finally, SAP-MLA3 includes cross-level interactions to examine how SA opportunity structures relate to SES-specific SA participation, showing that the effects of being enrolled at a university participating in the TGUP and/or GGJP do not differ significantly across SES groups. Supplementary analyses (available upon request) confirm that lower-SES students attending universities with favorable SA opportunity structures (i.e., having a major SA program) are equally likely as higher-SES students to study abroad (again contradicting **H5-1** but supporting **H5-2**). These findings suggest that the existence of favorable SA opportunity structures at universities benefits students from different social groups, and thus not only those from well-off backgrounds.

## Discussion and conclusion

Our study advances research on social inequalities in educational attainment in two ways. First, it examines social inequalities in SA choice by extending the individual-level RCT model into a multi-level model emphasizing the importance of context effects. Second, using unique micro-level student data supplemented with context data, it empirically examines how university contexts shape inequalities in SA choice according to students' SES, thereby providing the first in-depth MLA of SA intent and participation in Japan.

Our results show that institutional contexts are relevant predictors of SA participation (responsible for 14% of the variance at university level) but less so of SA intent (responsible for only 3.4% of the variance). Our variables to operationalize the institutional contexts at the university level can explain most of this variance — 82% in the case of SA intent and 71% in the case of SA participation. In contrast to previous research focusing on general resource differences between universities and on student body compositions (Kramer & Wu, 2021; Schnepf & Colagrossi, 2020; Schnepf et al., 2022; Whatley, 2019), our results show that, in particular, policy interventions designed to improve SA opportunity structures at universities (i.e., GGJP and TGUP) are positively associated with SA participation. Thus, they highlight the relevance of SA opportunity structures above and beyond general university characteristics, student body features, and students' individual characteristics.

However, our results also show that policy interventions designed to improve SA opportunity structures seem to hardly affect SA intent. This finding is congruent with the LCP in that SA intent seems to gradually develop over the life course — with early and repeated transnational experiences helping to cumulatively build future SA intent (Brooks & Waters, 2010; Entrich & Fujihara, 2022; Lörz et al., 2016; Weenink, 2014). Once students have developed SA intent over their previous life course, however, SA opportunity structures may function as a catalyst for SA participation. Without SA opportunity structures that

encourage these students to execute their SA intent, many students may abandon it (Kim & Lawrence, 2021; Lingo, 2019). Consequently, policy interventions designed to improve SA opportunity structures in higher education likely provide an effective lever to increase SA participation. For increasing SA intent, however, policy interventions might have to tackle students while they are still at secondary school, e.g., through informational campaigns and funds enabling exchanges of pupils and school internships.

Our analysis also expands the nascent literature emphasizing the role of SA opportunity structures as potential drivers or mitigators of social inequalities in SA intent and participation. In fact, our multivariate results only provide limited support for the so far dominant individual-level explanatory components: students' educational biography (**H1**), performance-related factors (**H2**), cost considerations (**H3**), and benefit considerations (**H4**) are strong predictors of SA intent and, except for benefit considerations, of SA participation, but they hardly explain the observed inequalities between SES groups in Japan. Instead, contextual variables explain social inequalities in SA participation to a larger extent than individual-level variables.

Our descriptive findings show that higher-SES students are more likely to be enrolled at universities with favorable SA opportunity structures (supporting the *cultural reproduction thesis*, **H5-1**). Moreover, our MLA verify the positive association of favorable SA opportunity structures with SA participation. However, lower- and higher-SES students are equally likely to (intend to) study abroad if they attend universities with favorable SA opportunity structures (supporting the *cultural mobility thesis*, **H5-2**). Favorable SA opportunity structures established through state programs thus may help achieve rather equal SA participation. Consequently, our findings indicate that Japan's recent push toward internationalization of higher education has created relevant SA opportunities — not only for students from well-off backgrounds, but also for the less affluent.

Still, notable horizontal inequalities that arose through the internationalization of higher education prevail, especially regarding SA participation. In fact, higher-SES students are in a better position to exploit SA opportunities because they are more likely to enroll at universities receiving funding to enhance SA opportunity structures. Crucially, only 5% of all universities were funded through GGJP/TGUP. Against this background, it would be relevant to model the effects of further expanding SA opportunity structures on the development of social inequalities. Established theories in the sociology of education, such as the theories of maximally maintained inequality (Raftery & Hout, 1993) and of effectively maintained inequality (Lucas, 2001), suggest that a further expansion of SA opportunity structures might first and foremost be exploited by higher-SES students, and only be used by lower- and mid-SES students once specific SA scholarships become less exclusive (Netz & Finger, 2016). Based on our cross-sectional analyses, we cannot precisely predict the effects of an additional expansion of SA opportunity structures.

Nevertheless, we hypothesize that social inequalities in SA intent and participation would be reduced if additional funds were directed toward universities with larger proportions of lower-SES students. For effectively mitigating social inequalities in SA intent and participation, however, measures directly targeting lower-SES students might be indispensable — including not only means-tested scholarships for lower-SES students, but possibly also tailor-made counseling services by international offices and faculty as well as attempts to involve these students in international encounters at their home university.

Our study has further limitations highlighting new avenues for future research. First, the generalizability of our findings beyond Japan is limited. However, the idea of combining individual-level with contextual-level theories and measures to better understand the conditions under which individuals make SA decisions promises



deeper insights in other countries as well. In this regard, our analyses call for more research investigating potential effects of specific national policies on social inequalities (e.g., ERASMUS + in Europe or the LEAP initiative by the Association of American Colleges & Universities in the USA). The few existing studies considering university-level factors for SA participation — albeit without taking into consideration actual SA opportunity structures — support the view that university contexts are important for shaping SA decisions also in countries such as Germany, Hungary, Italy, the United Kingdom (Schnepf & Colagrossi, 2020; Schnepf et al., 2022), and the USA (Kramer & Wu, 2021; Whatley, 2019). It would be interesting to test whether MLA using similar measures of SA opportunity structures come to similar conclusions in other countries. By adopting an internationally comparative design and using data for a sufficient number of countries, our meso-focused MLA could also be extended to include an additional macro-level.

Second, the operationalization of several variables implies limitations. We operationalized SA participation using a dichotomous variable not considering differences in its actual costs and expected benefits. Costs can vary by destination country, host institution, and the time spent abroad, and they may greatly influence the value of studying abroad for social distinction. Supplementary analyses (available upon request) examining the effects of SES on SA participation of different lengths (ordered categorical variable indicating SA participation of more than 3 months, up to 3 months, or no SA participation) show that higher-SES students also spend more time abroad on average than lower-SES students (supporting Entrich & Fujihara, 2022; Netz & Finger, 2016). This finding indicates horizontal inequalities in SA participation beyond university contexts that require further investigation.

While previous research suggests that income is a meaningful measure of SES, we would have preferred to additionally consider parents' educational background and evaluate which SES measure is most predictive of SA intent and participation in Japan.<sup>14</sup> Performance-related factors included no measure of absolute ability, such as secondary school or university grades, which might explain why they barely reduced the effect of SES on SA intent and participation. Cost considerations operationalized by students' willingness to bear SA costs exerted strong effects on SA intent and participation but did not explain the SES gap therein. The variable capturing benefit considerations expressed respondents' aspired-to future working environment very well but did not reflect how important they consider studying abroad to be for their later professional career. Most importantly for our research question, however, we are confident to have measured SA opportunity structures reasonably well.

Third, it would be relevant to additionally examine whether and how the existence of SA opportunity structures influence individual-level explanatory components depending on SES. For example, lower-SES students' cost and benefit considerations regarding SA decisions may change only once these students are surrounded by SA opportunity structures reducing the financial strain associated with studying abroad and providing information

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<sup>14</sup> Previous studies may have underestimated the economic dimension of SES by solely measuring SES via the educational background of students' parents (e.g., Di Pietro, 2020; Netz & Finger, 2016; Schnepf et al., 2022). In fact, studies operationalizing both dimensions report stronger effects of economic measures on SA participation (Entrich & Fujihara, 2022; Gerhards & Hans, 2013).

on possible labor market benefits of studying abroad.<sup>15</sup> Considering the interaction of individual decision-making with institutional contexts would certainly help further advance research on the determinants of studying abroad.

Fourth, we could not consider peer effects as facets of (institutional and private) contexts, although previous research suggests that peers may shape SES-specific SA intent and participation (Brooks & Waters, 2010; Van Mol & Timmerman, 2014).

Fifth, the cross-sectional design of our data implies further limitations. We were only able to study the SA decision-making process controlling for previous SA experiences when predicting SA intent. However, longitudinal research shows that first-year SA intent strongly predicts later SES-specific SA participation (Lingo, 2019). Future studies could thus combine a longitudinal design with an MLA design. This would allow scholars to examine whether the tendency that lower-SES students are more likely to abandon their first-year SA intentions is buffered by favorable SA opportunity structures.

Finally, future research could investigate whether inequalities in SA intent and participation eventually result in unequal future life chances. The few longitudinal studies for Japan report positive labor market returns to SA participation (Shimmi et al., 2017; Yokota et al., 2018). However, they did not account for potential heterogeneity in the effects of SA participation on the labor market outcomes of different SES groups (for a more elaborate discussion, see Netz & Grüttner, 2021). Whether higher-SES or lower-SES students benefit more from SA participation thus needs to be studied further. Until then, it remains to be seen whether institutional contexts supporting SA participation promote cultural reproduction or cultural mobility — in Japan and globally.

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**Data Availability** The data analyzed for this study (Japan Campus Life Data 2017) are available via the Social Science Japan Data Archive, Center for Social Research and Data Archives, Institute of Social Science, The University of Tokyo: <https://ssjda.iss.u-tokyo.ac.jp/Direct/gaiyo.php?lang=jpn&eid=1232>.

## Declarations

**Ethics approval** Our results do not allow for deductive disclosure of the survey participants' identities. Participation in the survey was voluntary and participants' confidentiality was protected.

<sup>15</sup> Several studies suggest that SA participation can have moderately positive effects on graduates' labor market outcomes (e.g., Di Pietro, 2022; Netz, 2021; Netz & Cordua, 2021; Netz & Grüttner, 2021; Shimmi et al., 2017; Yokota et al., 2018).

**Conflict of interest** The authors declare no competing interests.

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